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UNIVERSITY OF ALBERTA

Perceptions of Ability: Students With and Without Learning Disabilities at Postsecondary Institutions

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by

Karen Elaine Kovach

A thesis
submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Doctor of Philosophy

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

FALL, 1992

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Dedicated, with love,

to my mother and father,

Helen and Mike Kovach.

ABSTRACT

This study was designed to add to our knowledge base of adult students with learning disabilities. Two groups of students were involved in the study, adult students with learning disabilities (LD), and as a comparison group, adult students without learning disabilities (NLD). The 226 students (92 LD and 134 NLD) who participated in the study were from universities, community colleges, and technical schools. The total sample was selected on the basis of availability of students who had been diagnosed as students with learning disabilities. Therefore, this was a select sample.

Part I of the study asked students to rate themselves on their abilities to engage in various academic tasks. Results from this 24 item scale were factor analyzed and were subsequently grouped into four factors: ability to learn, organization, ability (IQ), and adaptation. Comparisons on the factor scores within each factor between the LD and NLD students, males and females, and postsecondary grade categories revealed some significant differences. NLD students rated themselves higher than LD students on the ability to learn factor. Males rated themselves higher than females on the ability (IQ) factor. And students in each of the three grade categories (low, medium, high) rated themselves differently on the ability to learn factor. On the second factor, organization, two grade category comparisons differed: low vs high and medium vs high.

Part II of the study required students to fill in eleven questions on an open-ended questionnaire which asked them to identify characteristics of students with high and low grades and to account for these differences. The categories that students identified were comprehensive and had been indicated by numerous previous research studies as factors influencing achievement. The responses for each question were coded using both sorting and analytic codes. These codes

were then entered into a statistical program for chi-square analysis. Differences were revealed among the categories for each of the questions by group, gender, and postsecondary institution (PSI).

LD students, in three questions, gave more unique responses regarding the nature of students with high and low grades. They also identified more external causes for poor academic performance than did NLD students on three questions. Differences between males and females revealed that males generated more responses in the motivation categories on three questions to account for academic performance differences than did females. In comparison to females, they also provided more unique responses. Students from the three postsecondary institutions involved in the study, showed minor fluctuations in response patterns, but were significantly different on only two questions. University students gave more responses indicating that to improve grades, students had to improve their academic behaviors. When asked what contributed to obtaining low grades, community college students and technical school students identified more negative self-perceptions than did university students.

In comparing the results of both parts of the study, some patterns were noted. These were discussed in terms of future research development as well as confirmation of past research findings. As well, implications for education were discussed.

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TABLE OF CONTENTS

I. INTRODUCTION 1

Purpose of the Study 4

Significance of the Study 4

Definition of Terms 6

II. REVIEW OF RELATED RESEARCH AND LITERATURE 7

A. THEORIES OF ADULT DEVELOPMENT 9

(a) Age/Stage Developmental Patterns 10

(b) Specific Domains within the Life Span Model 12

Ability Formation Theory 12

Academic Self-Concept 16

Achievement Motivation 21

Attrition and Retention in Postsecondary Education 26

Cognitive Development 30

Intellectual Development in the College Years 33

Self-Efficacy 36

Social Support 37

B. ADULTS WITH LEARNING DISABILITIES 39

(1) Issues in Definition 40

(2) Issues Pertaining to Past Research into the Nature of Adults with Learning Disabilities 42

(a) Characteristics of Adults with Learning Disabilities 44

(b) Theories of Adults with Learning Disabilities 50

Adult Development 50

Cognitive Development 51

C. SUMMARY 55

III. METHOD 57
A. PURPOSE 57
B. PROCEDURE 59
(a) Survey Sample 62
(b) Questionnaire Development 64
(c) Data Analysis 66
Part I 66
Part II 67
C. INTERNAL AND EXTERNAL RELIABILITY AND VALIDITY 72
D. SUMMARY 73
IV. RESULTS: QUESTIONNAIRE RESPONSES AND DESCRIPTION OF SAMPLE 75
A. QUESTIONNAIRE RESPONSES 75
B. DESCRIPTION OF SAMPLE 77
C. DISCUSSION 83
D. SUMMARY 85
V. RESULTS: SELF-RATING SCALE ANALYSIS - PART I 87
A. ITEM RESPONSE AND FACTOR ANALYSES OF THE 24 ITEM SELF-RATING SCALE 87
Research Question 1 87
Research Question 2 90
Research Question 3 94
B. DISCUSSION 100
C. SUMMARY 101
VI. RESULTS: ANALYSIS OF THE OPEN-ENDED QUESTIONNAIRE - PART II 102

A. ANALYSIS OF RESPONSES ON THE OPEN-ENDED QUESTIONNAIRE....102
Research Question 1....102
(a) Reliability of the Analysis....102
(b) Emergent Themes for Research Question 1....103
Question 1....108
Question 2....114
Question 3....119
Question 4....122
Question 5....124
Question 6....127
Question 8....129
Question 9....131
Question 11....134
Question 14....138
Question 15....139
Research Question 2....141
(c) Analysis of the Results for Research Question 2....141
Analysis of Total Responses for Each Question by Group - Students With and Without Learning Disabilities....142
Analysis of Total Responses for Each Question by Gender....146
Analysis of Total Responses for Each Question by PSI - University, Community College and Technical School Students....148
B. DISCUSSION OF RESULTS....150
(a) Emergent Themes for Research Question 1....150

(b) Analysis of the Results for Research Question 2 155
Group Analysis 155
Gender Analysis 156
PSI Analysis 156
C. SUMMARY 157
VII. CONCLUSIONS 159
A. SUMMARY OF THE STUDY 159
B. IMPLICATIONS OF THE STUDY 162
C. LIMITATIONS OF THE STUDY 164
D. PERSONAL REFLECTIONS AND SUGGESTIONS FOR FURTHER RESEARCH 164

REFERENCES 166

APPENDIX A: STUDENT COVER LETTER 198
APPENDIX B: STUDENT COVER LETTER (FOR STUDENTS USING A TAPE RECORDER) 200
APPENDIX C: QUESTIONNAIRE 203
APPENDIX D: REQUEST FOR RESEARCH RESULTS 215
APPENDIX E: ADMINISTRATOR PACKAGE 217
APPENDIX F: CODES 222
APPENDIX G: ASSESSMENT BATTERIES FROM THE VARIOUS PSIs INVOLVED IN THE STUDY 265

LIST OF TABLES

CHAPTER II

TABLE 1. Levels of Differentiation of Ability and Effort 14

CHAPTER III

TABLE 1. Postsecondary Institutions Contacted..... 59

TABLE 2. Attributes Considered for Use on the Self-Rating Scale..... 65

CHAPTER IV

TABLE 1. Number of Responses for Each Group by PSI..... 75

TABLE 2. Questionnaire Distribution Sheet 76

TABLE 3. Age (in years) 78

TABLE 4. Number of Students in Each Group With and Without High School Diplomas 78

TABLE 5. Year of Postsecondary Program..... 79

TABLE 6. Number of Male and Female Respondents..... 79

TABLE 7. Postsecondary Status: Full-Time or Part-Time..... 80

TABLE 8. Mean High School Grades 81

TABLE 9. Mean Postsecondary Grades..... 81

TABLE 10. Is There Another Family Member With a Learning Disability?..... 82

TABLE 11. Which Family Member?..... 83

CHAPTER V

TABLE 1. Response Patterns for Self-Rating Scale Items: Percent Selecting Each Response Category, Means, Medians and Skewness Indices..... 88

TABLE 2. Self-Rating Scale Item Intercorrelations and Squared Multiple R

in the Diagonal 89

TABLE 3. Four-Factor Solution for Items on the Self-Rating Scale: Principal Components with Varimax Rotation 91

TABLE 4. Primary Intercorrelations Between Factors 92

TABLE 5. Four-Factor Solution for Items on the Self-Rating Scale: Oblique Solution on the Primary Pattern - Orthotran 93

TABLE 6. Factor Score Weights for the Oblique Transformation - Orthotran 95

TABLE 7. Grade Categories 96

TABLE 8. Multivariate Analysis of Variance on the Four Sets of Factor Scores by Group, Gender and PSI 97

TABLE 9. Multivariate Analysis of Variance on the Four Sets of Factor Scores by High School Grade Category and PSI Grade Category 97

TABLE 10. Factor Score Means Table for Main Effects Results - Group, Gender and PSI Grade Category 98

TABLE 11. Significant Univariate Tests on Relevant Weighted Mean Factors by Group, PSI Grade Category and Gender - Type III Sums of Squares Table 99

CHAPTER VI

TABLE 1. Inter-Rater Reliability in Percentages by Question 103

TABLE 2. Summary Table of Responses and Categories for Each Question 105

TABLE 3. Chi-Square Analyses Indicating Similarity of Response Patterns - Total Number of Responses by Group 143

TABLE 4. Chi-Square Analyses Indicating Similarity of Response Patterns - Total Number of Responses by Gender 146

TABLE 5. Chi-Square Analyses Indicating Similarity of Response Patterns - Total Number of Responses by PSI 148

I. INTRODUCTION

"... (I)f we can't perceive, we can't perceive of the future and thus, we don't know how to act now." (Von Foerster, 1984)

Research in the area of learning disabilities has escalated in the past decade to a point where there is now a voluminous body of research material available describing the nature of learning disabilities (Bursuck & Epstein, 1987). Despite such a large body of literature, many questions still remain unanswered; problems and issues regarding the definition of learning disabilities (National Joint Committee on Learning Disabilities, 1981; Wong, 1988) have subsequently affected the quality and validity of the research (Algozzine & Ysseldyke, 1987; Mellard & Deshler,1984).

However, what remains indisputable is the knowledge among educators that there are growing numbers of students who are encountering difficulties in the academic sphere of learning (Weinstein, 1988) and many of these have been diagnosed as learning disabled. In 1979, the University of Alberta's Senate Task Force estimated that at least 15 percent of adults and students within the general population had specific or general learning disabilities. The numbers may even be higher as the field of learning disabilities expands.

The majority of the research into the nature of learning disabilities has been conducted with school aged populations, especially at the elementary grade levels. More recently, studies have focussed on the adolescent with learning disabilities (Whyte, 1983) and the adult student with learning disabilities (Blalock & Johnson, 1987; Kronick, 1988). Part of the reason for the growing interest in the LD adult student* has been the increasing number of

---

* Although it is proper to address students who have learning disabilities as students "with" learning disabilities, the researcher will sometimes use the phrase "LD student" or "LD adult." This is done strictly for reasons of parsimony and is not meant in any way to offend the reader or the

adults returning to postsecondary institutions to upgrade their skill levels and knowledge bases (Cordoni, 1982; Hoffman, Sheldon, Minskoff, Sautter, Steidle, Bakler, Bailey, & Echols, 1987).

Another reason for the interest in LD adults is that researchers and educators have realized that LD children grow up to become LD adults because there is no 'cure' for learning disabilities (Lieberman, 1987). According to Lieberman (1987), it is for this reason that the adult with learning disabilities has taken the field of learning disability research to extremely important new dimensions in recent years. However, compared to the school aged child, considerably less research and far fewer detailed descriptions of the LD adult learner are available. Even fewer studies exist which compare LD adult students with non-learning disabled (NLD) adult students on the same variables (see Chapter II for an explanation of this trend).

Although learning disabilities is more specifically an educational construct (Worden, 1983), it is commonly understood by most in the field that other areas of functioning are also affected. Not only are difficulties in academics noted, but self-concepts appear to be affected as well as social judgement (Blalock & Johnson, 1987; Kistner, Haskett, White, & Robbins, 1987; Kistner & Osborne, 1987; Kronick, 1988; Rogers & Saklofske, 1985). When a disability is pervasive and persistent and affects the totality of the individual's lifelong functioning, it can be assumed that the perceptions of the individual also reflect or are reflected in the approaches taken in completing or accomplishing tasks. Consequently, many LD adult students are considered to be at risk for successfully accomplishing and improving educational goals.

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individual with learning disabilities. Similar procedures for terminology will be used in referring to students who do not have learning disabilities. They will sometimes be referred to as "NLD students."

Attitude, motivation, and persistence have been identified as factors contributing to the successful completion of post-secondary education requirements (Raimst, 1981; Smith, 1981; Weinstein, 1987,1988) as they do in other domains of life. These three aspects have not been extensively explored with LD adults, although there is a body of research that has addressed the nature of motivation in students with learning disabilities and recent research by Gerber, Ginsberg, and Reiff (in press) have identified patterns of successful behavior in adults with learning disabilities.

Perceptions of abilities play an integral part in the academic functioning of all students and also have an important role in the successful completion of academic accreditation beyond the high school level (Kronick, 1988). An abundance of research exists describing the attitudes and achievement patterns of successful versus unsuccessful learners (Diener & Dweck, 1978,1980; Dweck, 1986; Licht & Dweck, 1984; Nicholls, 1984; Weinstein, 1988). Other research has looked at the variables which distinguish the student with learning disabilities from the student who does not have learning disabilities (Bursuck & Epstein, 1987; Kolligan & Sternberg, 1987). However, the research has not looked in detail at the descriptions these individuals give regarding the nature of ability. Nor, for that matter, has research addressed the descriptions that adult learners generate about how ability manifests itself in overt and competent scholastic behavior.

The concept of ability and the descriptions adult learners make regarding their perceptions of ability are important for educators. These descriptions have significant impact on the learners themselves, as well as affecting decisions concerning program direction and program selection in postsecondary educational systems. From the research, we have a clear idea of the researcher's point of view, but we have not described the nature of ability from

the learners' perspective. Nor have we assessed their perceptions of what it is that capable and competent learners do that gives them the appearances or qualities ascribed to ability in an operational academic sense (Kronick, 1988). For education to be effective, the ideas and perceptions of both educators and students should have some common ground and we need to know specifically what that ground is.

Purpose of the Study

The purpose of this study was to investigate the descriptions that adult students with learning disabilities (LD adult student) and adult students without learning disabilities (NLD adult students) make regarding: (a) their perceptions of their own academic ability, (b) the nature of ability as it relates to academic functioning, and (c) the manifestations of ability in academic work.

Significance of the Study

Studies in the area of the LD student, the failing or unsuccessful learner, and the successful learner have identified a number of areas that are important to consider in the educational process. Most research in the area of learning disabilities focuses on compensatory strategy approaches which are based on studies in the area of cognitive psychology and effective learning strategies (Alley & Deshler, 1979; Deshler, Schumaker, Alley, Warner, & Clark, 1982; Wong, 1987). Many more address the issues of definition, identification and eligibility. Group characteristics have frequently focussed on: locus of control, self-concept and attributions for performance (for a more detailed breakdown of current trends in the research, see Bursuck & Epstein, 1987).

Despite a broad knowledge and research base in cognitive psychology that describes the basic tenants of information processing and how this knowledge is applied in the areas of successful versus non-successful learners, it is difficult to find any literature in which adult students rate their own

perceptions of ability and describe the perceptions they have regarding what it is that students with ability do or do not do to demonstrate that ability. The most frequent response when students are queried about the differences between personal abilities and the perceived abilities of other learners appears to be some indicator of the presence or absence of intelligence or ability or effort without any other ascriptions given to what constitutes that ability or effort. It, therefore, appears that there is a growing need to look at the descriptions that learners make regarding the nature and manifestations of academic competence.

A significant part of our formal learning is based on our notions of ability and concepts of intelligence are intertwined with these notions. Nicholls and Miller (1984) acknowledged that our concept of ability is central to the development of achievement motivation. If as educators we seek to promote lifelong learning, then we must do so with a knowledge of the concepts we espouse. These concepts must not only relate to those identified through valid research practices that have emanated from our assumptions, but they must also be identified by the learners we are addressing.

Many of the assumptions and variables that have appeared in the literature to describe the LD adult learner have been extrapolated from our knowledge of school-aged learners. To attempt to describe the adult learner from information about children may provide guidelines but we should also recognize the existence of important qualitative differences. Although this researcher did not attempt to identify these qualitative differences, the study did investigate the nature of the learner from the adult learner's point of view, specifically, the nature and dimensions of ability on which LD and NLD adult students are both similar and different. In Part I, the students rated themselves on their own perceptions of their ability to do academic work. In Part II, they

described the operational variables that distinguish good from poor learners. Descriptive statistics and emergent themes were used to identify the operational and behavioral concepts that students described regarding the nature of ability. Themes from the two groups were analyzed for content and number of responses.

The results of the study will further add to the knowledge about adult learners and how they perceive ability.

Definition of Terms

Learning Disability: This definition is borrowed from the University of Alberta's Senate Task Force Report (1979):

> Children, youths and adults with learning disabilities are those who manifest a significant discrepancy between their estimated learning potential and actual performance. This discrepancy is related to the basic disorders in the learning process which may or may not be accompanied by demonstrable central nervous system dysfunction and which are not secondary to sensory loss, mental retardation, primary emotional disturbance or environmental disadvantage. (p. 3)

Adult Without Learning Disabilities: Any individual over the age of 18 years who has not previously been diagnosed as having a learning disability. In this study, the possibility exists that no assessment was ever conducted with the adult even though there may have been learning difficulties or the participant chose not to disclose the presence of a learning disability.

Perception: "The process of assembling sensations into a usable mental representation of the world. It reflects the needs, expectations, attitudes, values, and beliefs of the perceiver" (Coon, 1986, p. 437).

Ability: In this study, the term "ability" is used in a generic sense rather than as a psychological term. The definition was borrowed from the Oxford Dictionary and is as follows: "sufficient power, capacity (to do something); ... cleverness, talent, mental power ...."

II. REVIEW OF RELATED RESEARCH AND LITERATURE

The focus of the adult educator has been on quality in teaching, comprised of: course organization, teaching procedures, selecting and obtaining resources, carrying out the teaching successfully, and then evaluating student learning (Kemp, 1989). Although each of these components is important in maintaining good educational practice, it is also important to consider the nature and experiences of the adult student. As Cranton (1989) stated, "In recent years, educational research has demonstrated, if nothing else, that the teaching and learning process is an extremely complex interaction between individuals and the environment" (p. 3).

In the learning situation, the importance of the interaction between individuals and their environments, both past and present, cannot be minimized. Brundage and Mackeracher (1980) suggested that adults enter learning activities with an organized set of descriptions about themselves based on past experiences. And since learning activities imply change, the lack of stability in the learning process may lead to an upheaval in the sense of self followed by a reconsideration of educational goals. In a similar vein, Mezirow (1981) proposed that individuals learn when their perceptions of reality are not in harmony with their experiences (i.e., instability occurs).

Mezirow (1981) proposed a ten step learning cycle, which applied to both academic and experiential learning: (1) a disorienting dilemma (i.e., cognitive dissonance) occurs, (2) self-examination follows, (3) then there is a critical assessment period and a sense of alienation, (4) resulting discontent is related to the experiences of others, (5) an exploration of options for new ways of behaving ensues, (7) a course of action is planned, (8) new knowledge is

acquired in order to implement subsequent plans, (9) new roles are experimented with, and (10) a reintegration into the relevant societal context occurs. This description of the learning process of the adult is based on experiential background and, therefore, is reflective of the uniqueness of the adult learner. It is also indicative of the complexity and impact of the learning situation on a student. As educators, we need to remain aware of these factors.

Starling (1989) vividly outlined his experiences of becoming an undergraduate student for one term while teaching at a state college. He concluded, "... I have learned that, if we want to make college *safe* (italics mine) for learning, the 'rituals' of our profession must be carefully scrutinized with each passing term" (p. 7). The word "safe" is appropriate as Starling found the learning situation to be threatening, both to his self-concept and his life style. Underlying Starling's final conclusion was an indication that in order to be "scrutinizers," we must understand the nature of the adult learner—from both theoretical and experiential perspectives.

Since a comprehensive model of the adult learner is holistic in nature, focussing on both the individual and the environment, it is impossible to cover all aspects of the adult learner in a literature review. Therefore, the following literature review covers relevant adult development theories as well as theories and research within specific domains of this development as they relate to the learner. Because this thesis also deals with two types of adult students, those with learning disabilities and adults who have not been diagnosed as having learning disabilities, the chapter has been divided into two major sections.

Section A begins with general adult theories of development and covers age/stage developmental patterns and specific domains within the life span model. Section B, reviews the literature on adults with learning disabilities. This review begins with an introduction to two important areas of concern in the LD

literature: the issue of a proper definition of a learning disability and issues in the research of adults with learning disabilities. Subsequently, the remainder of the chapter looks at characteristics of adults with learning disabilities, including college students, and reviews developmental and cognitive theories pertaining to LD adults.

This order has been selected to give an overview of the nature of adults and adult students first, since we know more about them than we do about LD adults. As well, reviewing the literature on general adult development provides a basis which assists in understanding the similarities and differences among adults with learning disabilities.

A. THEORIES OF ADULT DEVELOPMENT

To outline some of the relevant theories, this section of the literature review covers the following topics: (a) a general overview of adult developmental theory and patterns across the lifespan, and (b) a discussion of the theories and research which cover specific learning or educational domains within the lifespan model such as ability formation theory, academic self-concept and competence, intellectual and ethical development within the college years, retention and attrition, achievement motivation and attribution theory, cognitive development, self-efficacy, and social support. These, of course, are arbitrary divisions as each continually interfaces and juxtaposes with the other.

Although this list is by no means exhaustive of the literature on adult development and learning, it has been selected in keeping with the constructs of the thesis. Whenever possible, the literature pertaining to adults has been reviewed. Occasionally, when more is known about school children and

adolescents than adults, pertinent literature from an earlier developmental period is reviewed.

(a) Age/Stage Developmental Patterns

A large number of theories have emerged to characterize the lifespan development of the adult within relatively clearly defined stages. These theories view development as a lifelong process with a wide variability for change within the context of the world view of the adult. The concept of the "life course" or the lifespan, according to Levinson (1986), implies stability and change, continuity and discontinuity, and orderly progression as well as stasis and chaotic fluctuation.

Development progresses from the interfacing of historical, individual and societal influences as adults encounter new tasks within their lives. These tasks mark significant transition points whenever a change in an existing structure is necessitated. The major transitions usually occur at particular stages. As well, the changes within each stage occur within the domains of work, career, family, relationships, and conceptions of self. Each of these domains appears to have a developmental pattern of its own. Theories of adult development proceed from about the ages of 17 to 22 and continue throughout the life of the adult.

As Levinson (1986) has pointed out, the study of adult development is in its infancy as new directions are explored (also see Gottlieb, 1991; Lerner, 1991). However, research into the marker events which typify various stages has led to the identification of a number of developmental periods. These periods begin and end with fairly clearly defined average ages (Chickering & Havighurst, 1981; Erickson, 1959; Gould, 1972; Levinson, 1986; Neugarten, 1968, 1976; Sheehy, 1976). The stages identified by Levinson are fairly typical of the stages outlined by other age/stage theorists and are as follows:

> 1. The *Early Adult Transition*, from age 17 to 22, is a developmental bridge between preadulthood and early adulthood.
> 2. The *Entry Life Structure for Early Adulthood* (22 to 28), is the time for building and maintaining an initial mode of adult living.
> 3. The *Age 30 Transition* (28 to 33) is an opportunity to reappraise and modify the entry structure and to create the basis for the next life structure.
> 4. The *Culminating Life Structure for Early Adulthood* (33 to 40) is the vehicle for completing this era and realizing our youthful aspirations.
> 5. The *Midlife Transition* (40 to 45) is another of the great cross-era shifts, serving both to terminate early adulthood and to initiate middle adulthood.
> 6. The *Entry Life Structure for Middle Adulthood* (45 to 50), like its counterpart above, provides an initial basis for life in a new era.
> 7. The *Age 50 Transition* (50 to 55) offers a mid-era opportunity for modifying and perhaps improving the life structure.
> 8. The *Culminating Life Structure for Middle Adulthood* (55 to 60) is the framework in which we conclude this era.
> 9. The *Late Adult Transition* (60 to 65) is a boundary between middle and late adulthood, separating and linking the two eras. (Levinson, 1986, p. 7)

The transition from adolescence to adulthood is marked by a series of interrelated events. These events represent a movement from economic dependence and participation in the family of origin to economic independence and the possible establishment of a family of procreation (Marini, 1984). The movements are indicative of role changes which include a change from the role of student to the role of adult as worker, spouse, and/or parent.

There is considerable variation in the sequencing of events that mark the above changes. Moving from dependence to independence are functions of timing. As well, each stage appears to have its own direction and magnitude. Each addresses issues of competence, emotions, autonomy, interpersonal relationships, purpose, identity, and integrity (Chickering, 1969). And the potential for psychological growth is dependent upon the individual. Growth is

determined by the manner in which each individual meets and adapts to the challenges within each of the life domains.

Currently, trends in human development are shifting away from the concept of a 'generic person' to one in which individual differences, contextual variations, and changing person-context relations are acknowledged (Gottlieb,1991; Lerner, 1991; Levinson, 1986). This 'generic person' was and is still conceptualized as an individual with the ability to perform specific age-related tasks. A generic person may also be thought of as one who belongs to a particular socioeconomic group with identifiable demographic characteristics. There is now a movement toward the importance of "context" rather than characteristics. Also, more of an emphasis is now being placed on the multidimensional and multilevel nature of development throughout the lifespan or life course.

(b) Specific Domains within the Life Span Model

Ability Formation Theory: Ability formation theory closely follows developmental theory in that it assumes changes in conception over time. It is the process by which individuals, usually children, form conceptions about their own and other's abilities (Paris & Byrnes, 1989; Rosenholtz & Simpson, 1984). As the children come to accept an interpretive model of ability isomorphic with that institutionalized in the larger society, perceptions into the nature of ability undergo changes. These changes are brought about by the structure of daily activities at school through observation of teacher behaviors and peer information exchange or social comparison information (Jagacinski & Nicholls, 1987; Paris & Byrnes, 1989). The institutionalized model of ability is, therefore, a result of interaction processes and feedback.

The most frequently researched topic related to ability formation theory has been achievement behavior with emphasis on the relationship between

ability and effort. Heider (1958) and Nicholls and Miller (1984) have similar views regarding the relationship between ability and effort—ability and effort are viewed as inversely related, especially among adults. However, in their research, Nicholls and Miller (1984) indicated that beginning conceptions of ability in younger children are undifferentiated from effort. As children gain more experience in educational institutions, the concept of ability begins to change as effort increasingly becomes differentiated from ability. These changes are outlined in a four-step developmental process in Table 1.

In accordance with Nicholls and Miller (1984) and Paris and Byrnes (1989), younger childrens' responses to task difficulty cues, performance outcomes, and social feedback are related to effort—the amount of effort required to successfully complete the task. Ability, as well, is reflected in the amount of effort a child puts into a task. With older children and adolescents, high effort implies lower ability, and ability is more frequently associated with capacity. Therefore, lack of ability can be seen as having more debilitating effects on learning and performance at this stage (Covington & Omelich, 1979; Jagacinski & Nicholls, 1987; Leggett & Dweck, 1987; Licht & Dweck, 1984; Nicholls, 1984). According to Heider (1958) and Nicholls and Miller (1984), adults appear to resemble adolescents in their conceptions of ability. If they believe their ability is low, they believe they lack capacity. They see higher effort as implying lower ability. However, other research has indicated that these beliefs are more complex than this. This complexity is briefly described further along in this discussion.

Success or failure produce feelings of competence or incompetence depending on social comparison information regarding the amount of effort that others have put into the task. These feelings of competence or incompetence are also related to the self-perceptions that the students hold regarding their

own abilities. Younger children believe that effort or lack of effort contributed to the outcome. With age, ability is seen as increasingly necessary for high achievement. If ability becomes increasingly differentiated from other factors such as difficulty, conduct, outcome, and effort, it is seen as something not everyone can have (see Table 1).

Table 1.

Levels of Differentiation of Ability and Effort

Level	Description
Level 1: effort or outcome is ability	Effort, ability and performance outcomes are imperfectly differentiated as cause and effect.... Children center on effort (people who try harder are seen as smarter even if they get a lower score) or on outcome (people who get a higher score are said to work harder even if they do not, and are seen as smarter).
Level 2: effort is the cause of outcomes	Effort and outcome are differentiated as cause and effect.... (E)qual effort leads to equal outcomes.
Level 3: effort and ability partially differentiated	Effort is not the only cause of outcomes. Explanations of equal outcomes following different effort may ... imply ability as capacity.... These explanations are not always systematically followed through.
Level 4: ability is capacity	Ability and effort are clearly differentiated. Ability is conceived as capacity which, if low, may limit or, if high, may increase the effect of effort on performance. Conversely, the effect of effort is constrained by ability. When achievement is equal, lower effort implies higher ability.

Adapted from Nicholls, Patashnick, and Mettetal, 1986.

Nicholls and Miller (1984) postulated that the concept of ability is central to the development of achievement motivation. Sometimes, the achievement behavior of adults can resemble that of children; at other times, it has features not found in children. Like children, adults prefer tasks they are uncertain of completing as opposed to tasks that are too easy or too difficult. However, adults differ in their affective and overt behavioral responses to information regarding learning task characteristics (e.g., difficulty cues), performance

outcomes (e.g., scoring higher than others), and social feedback (e.g., teacher's displeasure over students' failures). In these types of responses, they are believed to resemble adolescents.

Jagacinski and Nicholls' (1990) latest research outlines two important conceptual shifts from their previous research regarding the nature of ability beliefs in adults: (a) adults generally use less differentiated conceptions of ability than do adolescents, and (b) for adults, effort is central to achievement. As well, contrary to previous notions which indicated students will reduce effort to protect their perceptions of ability (Covington, 1985; Covington & Omelich, 1979; Deutsch & Soloman, 1959; Weiner, 1979), Jagacinski and Nicholls (1990) found that college students see the "strategy of reduced effort to protect ability" concept as viable for others, but not for themselves. Thus a reduced-effort strategy was not endorsed by college students in the study. Although the college students understood the concept that high effort and low performance indicated incompetence, they still rejected the reduced effort strategy. Baumgartner and Levy (1988) noted similar results among students with high self-esteem. Therefore, the differentiation of effort and ability may not typify only younger children but adults as well.

When ability is undifferentiated from effort, high ability is usually indicated through improved performance as a result of increased effort. Consequently, it appears that the motivation to learn is more assured when the concept of ability is less differentiated since the amount of effort put into a task is under the control of the student (see the section in this chapter on "self-efficacy" for a further explanation). A key to improved understanding of adult achievement appears to be the knowledge of whether adults employ more or less differentiated conceptions of ability and under what conditions these conceptions occur. The research of Levy (1988), Surber (1984), and Touhey and Villamez (1980) has

indicated that only those students with low achievement needs or low self-confidence follow the Heider (1958) formula whereby ability and effort are inversely related. Consequently, a revised model of ability formation for adult students may be necessary.

Academic Self-Concept: In order to clarify the nature of the research in this area, it is necessary to first outline the implications of self-concept research for education. Following this, the review will describe the terms that have been used and confused in the research and then delineate two types of construct research along with corresponding theoretical models. Then the relevant research will be reviewed. The reason for this approach is due to the number of operational definitions which have confounded the research, as well as the "muddy" relationship between achievement and self-concept. In educational research, self-concept and academic achievement relationships have been approached from two different perspectives: (1) the relationship between general or total self-concept and academic achievement, and (2) the relationship between academic self-concept and academic achievement. The results of studies using general self-concept are somewhat different from those studies using the academic self-concept.

Sometimes the above approaches have been combined with attribution theory in order to more clearly explain internalizations of causation. Other studies attempt to establish direction of causation: does academic achievement influence self-concept or does self-concept influence academic achievement? The variety of definitions, the different types of construct research, the choice of theoretical models, and the combination of self-concept theories with other theories for research purposes have provided a wealth of information that appears contradictory or confusing if distinctions are not made clear.

A critical variable in education and educational research is the notion of "self-concept" since it is frequently posited as a mediating variable facilitating achievement (Burke, Hunt, & Bickford, 1985; Byrne, 1984; Eshel & Kurman, 1991; Marsh, 1987, 1990; Pottebaum, Keith, & Ehly, 1986; Wagner, 1983; Wylie, 1979). Self-concept is believed to either restrict or enhance a person's capacity to fulfill potential (Rogers, 1951) as well as to have motivational properties such that changes in self-concept will lead to changes in achievement (Marsh, 1990). Although educators have contended that achievement is strongly related to self-concept, there is no clear, concise and universally accepted operational definition of self-concept (Byrne, 1984), nor is the relationship between self-concept (SC) and learning clear (McCarthy & Schmeck, 1988).

Three factors appear to influence the complexity of the self-concept literature: (1) concept definition which sometimes uses the term "self-concept" interchangeably with the term "self-esteem" or combines the two into one definition, (2) two different types of research into self-concept as a construct, and (3) the magnitude of the relationship and/or direction of causation between self-concept and academic achievement. Self-concept and self-esteem research have both appeared in the literature and they have, at times, been confused with each other (Fleming & Watts, 1980).

McCarthy and Schmeck (1988) have attempted to clarify the difference between the two concepts of self in the following manner, "... *(S)elf-concept* is the informational part of the concept (what we know or believe about ourselves) and *self-esteem* is the emotional part (how we feel about ourselves)" (p.132). However, not all research has made this distinction and, consequently, self-concept research is sometimes self-esteem research and vice versa. The combination of the two terms into one definition can be seen in Byrne's (1984) definition of self-concept: "...(I)n general terms, self-concept is our perception of

ourselves and, in more specific terms, it is our attitudes, feelings and knowledge about our abilities, skills, appearance, and social acceptability" (p.428). Byrne (1984) describes this definition as the one most commonly used in the literature.

In her own research on adults with learning disabilities, Barr (1990) defined self-esteem as "...a judgement that one forms about oneself," and noted that self-esteem increases, "not as a function of praise or reinforcement from others but as a function of perceived accomplishment" (p. 145). Her findings, which indicated that achievement in adulthood raises self-esteem, were supported by the previous research of Franks and Marolla (1976), Klugerman and Darkenwald (1982), and, more recently, by Bandura's (1989) theory of human agency in social cognitive theory. Therefore, an interacting variable in the formation of academic self-concept (SC) may lie in the perceived accomplishments of individuals over long periods of performing academic tasks.

Cronbach's (1971) terminology, which distinguishes between two types of construct research, has been used by Marsh (1987) and Byrne (1984) to clarify the nature of the SC research: (1) within-network research looks at relations with respect to a general SC and more specific facets of the construct (i.e., these are studies which examine the internal structure of the construct), and (2) between-network research looks at the relationship between the SC construct or its facets and some other construct such as academic achievement (i.e., these are validation studies which examine the relationship between a construct and/or its facets and some other construct). As part of the "within-network" research paradigm, four theoretical models have been outlined by Byrne (1984): (1) the nomothetic model in which the characteristics of SC are used to explain behavior in various settings, (2) the hierarchical model which sees multiple facets of SC rank ordered with the base of the hierarchy

consisting of those self-concepts which are situation-specific and the apex consisting of general SC, (3) the taxonomic model which views facets of SC as independent of each other but acknowledges a general SC factor ("g" factor), and (4) the compensatory model which also acknowledges the "g" factor but views specific aspects as inversely related rather than proportionally or independently related (e.g., low academic self-concept may be compensated for by high social self-concept).

Some studies have attempted to delineate magnitude of relationship and/or direction of causation. Correlational studies of school aged populations have generally found significant correlations between academic self-concept and academic achievement (Chapman & Boersma, 1979, 1991; Marsh, Byrne, & Shavelson, 1988). Smaller correlations have been noted between general self-concept and academic achievement. Hansford and Hattie (1982), in a meta-analysis of the research, found a small but positive average correlation between the two constructs of general self-concept and achievement with 4-7% of the variance explained. But, as Wagner (1983) noted, upon reviewing the research,

> We find a well-known pattern: (a) Self-concept measures correlate less strongly with standardized (achievement and intelligence) tests than with grades. (b) The more specific the self-concept, (general self-concept, general self-concept of ability, specific subject matter self-concept), the stronger the relationship with the achievement criterion. (p. 245)

Byrne (1984) and Marsh (1990) have also supported this view (see Byrne, 1984, pp. 446-449 for a summary of the instruments used and the correlations found in studies prior to 1984).

In attempting to identify the causal relationship (i.e., one measure caused the other) between self-concept and academic ability, Pottebaum, Keith, and Ehly (1986) utilized data from the National Centre for Education Statistics in the

U.S. Using a Cross-Lagged Panel Correlation method to analyze the data (N=23,280), they did not find a causal relationship between self-concept and academic ability but noted that one or more third variables might predominate over the first two (i.e., social class and ability) in a reciprocal relationship. In support of this conclusion, Byrne (1984) and Eshel and Kurman (1991) noted that the correlation between self-concept and academic achievement may be influenced by grade level, socioeconomic status, ethnicity, ability level, specificity of self-concept measures, and the type of achievement measures used. And in a longitudinal study, Cassidy and Lynn (1991) stated that current evidence points to the influence of socialization, both formal and informal, as well as family background and school environment, which combine to form personality characteristics and intelligences that, in turn, produce a particular motivational style indicative of academic achievement.

Self-concept is itself a complex construct. Shavelson, Hubner, and Stanton (1976), after reviewing the literature and finding many dimensions to the self-concept construct, summarized the research by describing self-concept as organized, multidimensional, hierarchical, stable, developmental, evaluative, and differential. Academic self-concept is believed to be one of the many specific facets which comprise the multidimensional SC. Historically, the research trend has focussed on a general or total SC using hierarchical theory as the foundation and has relegated academic self-concept to a relatively minor role (Marsh, 1987). But educators have been interested in its relationship to academic achievement and have continually attempted to clarify this relationship through research without ignoring the relationship between general SC and achievement. Problems have arisen in this research because of a variety of operational definitions which frequently do not distinguish between

self-concept and self-esteem and because of a plethora of research models that mix or confuse within- and between-network research.

Self-concept models have been combined with attribution theory in order to more clearly explain internalizations of causation or explanatory style (see Burke, Hunt, & Bickford, 1985; Seligman, 1991). Explanatory style (Peterson & Barrett, 1987), may be reflective of an individual's academic self-concept in that it is a personal style accounting for the way in which bad events are explained. It is drawn from the learned helplessness model proposed by Seligman and his associates (Garber & Seligman, 1980) and Seligman (1991). The number of variables that interact to produce either a negative or positive explanatory style are dependent on the individual's background, interactions, and life experiences. Isolating individual factors would be very difficult with the number of possible variables that need to be considered.

Achievement Motivation: Part of the difficulty in summarizing the research on motivation is that there is a lack of adherence to any particular theoretical model; thus, a diversity of approaches have appeared in the literature. To add to the confounding literature base, there is also the question of the link between academic achievement and motivation. Motivation is assumed from performance data (i.e., what was learned) or feedback regarding performance (i.e., sometimes referred to as social comparison information). Thus, it has overlapped with two very large domains of psychological research: learning and social learning theories (including theories of the self which subsume theories of self-concept and self-efficacy). The clearest picture of the 'ontology' of motivation is given by Weiner (1990), in which he outlines the changes in the topics of research beginning in 1941 and moving to 1990.

Motivational theories which attempted to explain instincts, drives, and conditioning, gave way to theories that did not presume to explain all aspects of

motivation, and, therefore, had a more limited focus (Weiner, 1990). The concept of motivation, described by early researchers like Spence and Hull, was used to explain the direction, amplitude, and duration of goal-setting behavior in laboratory settings. Then a shift occurred from a focus on the mechanics of motivation to a focus on cognition.

In the 1940s and 1950s, according to Weiner (1990), research topics covered such aspects as: needs and activity levels, appetite and aversion, neural structures, defense mechanisms, incentives, and in education—praise and reproof, success and failure, knowledge of results, cooperation and competition, and reward and punishment. The early 1960s ushered in more theory (i.e., expectancy theory), topics on drive and learning, drive and frustration, fear and anxiety, and arousal states. Towards the end of the 1960s, research covered four theoretical approaches: associative, drive, cognitive and psychoanalytic, as well as a proliferation of articles on dissonance, curiosity, frustration, aggression, learning, perception and memory. By the 1980s there had been a shift to attribution theory, achievement motivation, self-esteem, the biochemical correlates of motivation, and reinforcement theory. And by the beginning of this decade, three major groupings had appeared in the literature: cognitions, individual differences, and environmental determinants (see Weiner, 1990).

Some of the research into motivation combines motivation with "self theories," as evidenced by McMillan's and Forsyth's (1991) view. Motivation, according to McMillan and Forsyth, is "the processes that initiate and sustain behavior. Motivation is defined more specifically for learning in college courses as the purposeful engagement in classroom tasks and study, to master concepts and skills" (p.39). McMillan and Forsyth based their theory of motivation on need and expectancy theory. Academic learning is viewed as a

primarily cognitive activity whereby students are influenced by their thoughts about what is important and what they believe they can accomplish.

Weiner (1980), on the other hand, based his concepts of motivation, along with ensuing emotional states, on attribution theory. Most important to his thesis are the causal ascriptions given to effort, task difficulty, luck, and ability, which are related to locus, stability and controllability. Furthermore, the locus of causality influences the emotional consequences of success and failure. When outcomes are attributed to an internal source, pride and shame are maximized. Conversely, when outcomes are attributed to an external source, pride and shame are minimized. Cooper and Good (1983) extended the number of attributional categories from Weiner's four to a total of twelve: ability, previous, experience, acquired characteristics, typical effort, interest in the subject matter, immediate effort, attention, teacher, task, other students, family, and physiological processes. In a content analysis review of the literature, Wang, Haertel, and Walberg (1990) viewed all twelve of these categories as contributing to various "models of school learning."

Success and failure are important mediators of performance in achievement settings. Success, viewed as the consequence of high ability or hard work, maximizes feelings of pride, whereas success ascribed to task difficulty or luck minimizes feelings of pride. Failure due to perceived lack of ability which is stable and uncontrollable leads to helplessness and shame, and results in performance decrements. Failure, that is seen as due to insufficient effort which is unstable and controllable, leads to higher expectations of performance or, at minimum, maintenance of performance. Other research (see Diener & Dweck, 1978, 1980; Dweck, 1975,1986) has substantiated these propositions. Success factors that remain under the volitional control of the individual tend to produce higher feelings of pride than those over which the

individual has no control. And an internal locus of control has been shown to be characteristic of high achievers (Chen & Tollefson, 1989). Factors which are stable or unstable also influence an individual's expectations for success or failure. Attributions of success to stable causes and failures to unstable causes lead to higher expectations of success than do the converse of these attributions.

Dweck's (1986) research on motivation affecting goal-oriented activity and task performance focussed on resultant adaptive and maladaptive patterns of behavior. She divided goal-orientations into two categories: learning goals and performance goals. Learning goals were defined as those goals in which individuals sought to increase their competence in order to understand or master something new. Performance goals were goals in which the individuals sought to gain favorable judgements of their competence and avoid unfavorable judgements. Students whose goals were to increase competence sought challenge and maintained persistence regardless of confidence in ability. They also viewed intelligence as a malleable, not a fixed quality. Students who were focussed on performance goals sought challenge and maintained persistence as long as confidence in ability was high. If self-confidence in ability was low, they tended to appear 'helpless,' avoid challenges, and had lower levels of persistence. These findings are consistent with Garber and Seligman's (1980) conceptions of learned helplessness.

Students who set performance goals were seen to be more competitive and less cooperative in their learning strategies and behaviors. Other researchers have identified competitiveness as an undermining factor for intrinsic motivation (Ames, 1987; Covington, 1987; Garland, 1983; Jagacinski & Nicholls, 1987; Lepper, 1978; Manderlink & Harackiewicz, 1984; Nicholls, Patashnick, & Nolan, 1985). These students are also more at risk for

maladaptive motivational patterns (Benenson & Dweck, 1986; Dweck, 1986; Jagacinski & Nicholls, 1987; Leggett & Dweck, 1987; Licht & Dweck, 1984; Nicholls, 1984) although they tend to perform well on individual tasks and maintain high levels of performance over long periods of time.

Seligman (1991) noted that individuals can change their explanatory style or attributions for success and failure by learning to ascribe success to stable factors, failure to unstable factors, and maintaining an element of hope when life challenges the best coping mechanisms. College students who explain bad academic events with internal, stable and global causes have been found to perform more poorly than students who use external, unstable, and specific causes (Peterson & Barrett, 1987). However, attributional interventions which teach students to replace fixed explanatory styles by blaming failures on more transient causes have been shown to improve the students' persistence and performance in college courses (Ames & Lau, 1982; Wilson & Linville, 1982, 1985).

Eiser (1986) summed up the related research on motivation in this fashion. Individuals who are high in achievement motivation are usually attracted to activities that allow the attribution of success to ability and effort. They are willing to try hard because they see success as a function of effort, select tasks of intermediate difficulty, and persist in the face of failure. Conversely, those individuals who are low in achievement motivation are more likely to give up in the light of failure. They are also more likely to choose very easy or very difficult goals and attribute their failures to lack of ability. Expending effort is not seen as playing a large role in success.

Achievement motivation research has assumed that task performance data are, to varying degrees, indicative of a level of motivation. However, investigations in this area have revealed the complexity and the

interdependency of a number of factors: attributions, goals, intelligence, competence, quality of instruction, personality, social learning, efficacy, self-concept, cognition and behavior (Wang, Haertel, & Walberg, 1990). The literature base in this area is massive. Results often vary from one study to another depending on the model adhered to, and the variables that were held constant or manipulated during the experimental situation.

In the classroom situation, there are a number of variables not under the control of the researcher. The research results are, therefore, dependent on the combination of theories that were integrated to produce the research model: achievement motivation has been combined with what may be referred to as "self theories," and it has also been integrated with attribution theory. It is also important to remember that achievement motivation is a multidimensional construct which encompasses a number of factors such as school type, IQ, and home background. However, achievement motivation has been shown to be a better predictor of educational attainment than is IQ (Cassidy & Lynn, 1991).

Attrition and Retention in Postsecondary Education: Smith (1981) reviewed the trends between 1920 and 1970 in attrition and retention rates at colleges for general patterns relating to demographic, financial, and socioeconomic factors in two-year and four-year colleges. Approximately 50% of baccalaureate students had not completed a degree in four years, nor had they returned to complete their degrees. Drop-out rates were highest during the first year of a student's enrollment in a two-year college. The lowest drop-out rates were recorded for the more prestigious four-year colleges. Smith found that of those students who persisted, more were single than married, but there were no differential patterns for cultural groups or between genders.

Smith also found a large majority of students frequently withdrew for nonacademic reasons. Financial limitations, as opposed to academic failure,

were most often cited as a reason for dropping out. The majority of the drop-outs appeared to come from the middle class. Those who cited personal reasons or lack of goal orientation as the factor that influenced the decision to drop-out were more likely to return than those who cited financial reasons. Voluntary withdrawal was viewed as a coping mechanism when the student was faced with incompatibility between the self and the college environment. The influence of the home also appeared to be a factor that was paramount to the successful completion of the degree.

Raimst (1981), in one of the largest longitudinal studies on retention and attrition, found graduation and drop-out rates similar to Smith's (1981) findings. In four-year colleges, the graduation rate was between 45-60% within four years after entry. Within five years of entry into a four-year college, another 10-15% of students received their degrees. After six years to ten years from first year of entry into college, another 10-15% received degrees. These figures represented a total graduation rate within ten years of 65-90% and a drop-out rate of 10-35%.

Raimst also observed some definite patterns of dropping-out to be occurring. Often students with high academic potential who did poorly at one college transferred to another college and did well. Students who questioned the value of a college education showed a tendency for 'vagabonding' for a year before returning. Female students who suffered a disappointment in a relationship tended to transfer to colleges which were closer to home. And some students with high academic potential and lack of degree commitment dropped-out, found a job and did not give college much further thought.

Hilton (1982) compared the drop-out rates for two- and four-year colleges and found that the drop-out rates in two-year colleges were more than twice that of four-year colleges (i.e., 30% vs. 13%). Reasons for dropping-out included

academic matters, financial difficulties, motivational problems, personal considerations, dissatisfaction with college, a need for new experiences, and a lack of initial plans to complete a degree. Hilton (1982) also noted that students who had career goals requiring higher education and who saw academic activity as rewarding, viewed persistence as more important than high academic achievement. Students who saw themselves as having fewer career choices were less likely to persist than other students.

Tinto's (1987) drop-out figures are even less encouraging than Hilton's (1982) or Smith's (1981). According to Tinto (1987), there were approximately 2.8 million students in the U.S. entering higher education for the first time. He estimated that over 1.6 million would not graduate from their first institution and, of these students, 1.2 million would leave higher educational institutions without ever completing a degree. This translates to a drop-rate of approximately 43%, slightly higher than the rates noted by Smith and Hilton, and a graduation rate of 57% with 43% of those students graduating from their original colleges of entry and 14% transferring institutions and graduating from other colleges.

Patterns of students' retention have prompted researchers to propose various models of student retention. Two of the most recent models are presented here. Tinto (1987) developed a model based on his own research in the area and his model of retention is based on factors that influence persistence rather than factors in the decision making process (i.e., internal factors related to the individual student). Hossler, Bean, and Associates (1990), in an alternative model, outlined the environmental variables that affected retention decisions. Their model was derived from previous research studies done by Hilton (1982), Raimst (1981), Smith (1981), and, to some extent, Tinto's work (1975, 1987).

Tinto (1975,1987), through his own research, developed a theoretical model based on the factors that influence a students' persistence. He saw students' persistence in college as a function of their integration into the social and academic systems within the college and the resulting commitment to the institution and a commitment to graduation goals. Social integration included participation in the nonacademic activities of the institution such as joining campus groups and nonacademic interaction with peers and instructors. Academic integration was a function of interactions with instructors over academic concerns and involvement with intellectual groups and activities. Commitment to the institution was influenced by favorable attitudes toward the institution which, in turn, resulted in the intent to remain at the institution and complete a degree. It is also Tinto's (1987) contention that institutions of higher learning should focus their efforts on the educational, social and intellectual growth of the students within the institution. From this position, he argues, enhanced student retention will follow.

In an alternative model, Hossler et al. identified five main environmental factors as contributing to the decision making process: background, interaction, outcomes, intent, and final decision. Each of the five main factors were made up of several variables. The first factor, background, was formulated from the characteristics of students most likely to remain enrolled. These were students who were academically successful in high school, ranked high in their graduating classes, took college preparatory courses, had high but realistic goals, and had college-educated parents who were financially well off and supported their child's decision to attend college. The above considerations were labelled, "education plans and goals," "high school GPA and rank," "college preparatory curriculum," and "parent's income, education and support."

The second factor, interaction, was comprised of four variables which in turn had several components. The organizational variable was made up of college admissions procedures, courses offered, schedules, rules and regulations, academic services, social services, and financial aid. The academic integration variable was defined by study skills and habits, relationships with faculty, deciding on a major area of study, and absenteeism. The social integration variable related to having close friends on campus, informal contact with faculty, and a social support system. The final variable, called environmental pull, was identified by lack of finances, having a significant other elsewhere, an opportunity to transfer, work or a job, and family responsibilities.

The factor called "outcomes" was composed of one variable, attitudes, which reflected the student's satisfaction with the institution, the sense of self-development, the practical value of education, self-confidence as a student, and level of stress. Students with positive attitudes toward the postsecondary institution were more likely to stay. The next factor, intent, was formed through a linear progression of the previous factors and variables culminating in reflections about GPAs, institutional fit, and institutional commitment or loyalty. From intent, the final factor, making a decision, considered all the previous information and resulted in the student's decision to stay or to leave the postsecondary institution.

Cognitive Development: Some theorists have focused on adult cognitive development as an essential component in the sequence of life events (see Baltes, 1983; Baltes & Labouvie, 1973; Commons, Richards, & Armon, 1984; Edelstein & Noam, 1982; Lerner, 1984; Piaget, 1972; Sternberg, 1982). These approaches state that the nature of adult learning is qualitatively different from that of children and adolescents. The roles of both pragmatics and context, in

addition to the basic notion of cognitive operations, form interactive patterns affecting the nature and quality of adult thought and intellectual performance (Arlin, 1984; Sternberg, 1982).

In order to account for the qualitative differences in adult thought, Baltes, Dittman-Kohli, and Dixon (1984) suggested a dual-process scheme in which the two processes are intrinsically related. The first process refers to *cognition qua cognition*, i.e., the mechanics of information and problem solving or the mechanics of cognition. This is associated with such tasks, often found in the first third of life, as perceiving relationships, classification, and logical reasoning.

The second process of the proposed scheme describes the function and application of intellectual behavior and is referred to by Baltes et al. as the *pragmatics of intelligence*. The central feature of this process is its emphasis on adaptability. Adaptability subsumes crystalized intelligence as well as specialized dimensions of knowledge and context. Knowledge and context are related to performance factors. This is the central focus of cognitive functioning in the adult during the middle and later stages of adulthood. In order for the adult to enact the second part of the scheme, learning from the first scheme (*cognition qua cognition*) must be part of the adult's repertoire.

In assessing these two variables, it is also important to realize that there is a dynamic interaction between growth and decline which affects the mechanics and pragmatics of intelligence. There is evidence for the decline of psychometric test performance with age, especially where speed of response is concerned. There is also evidence for the stabilization or progression of certain capabilities such as judgement, reasoning and wisdom under certain test conditions (Dixon & Baltes, 1986). In order to understand the changes in adult intellectual performance, four underlying conceptions of intelligence are

important. These conceptions are: its multidimensional nature, the multidirectionality of change patterns, interindividual variability, and intraindividual plasticity (Dixon & Baltes, 1986). These conceptions have guided the research in the area of adult cognitive development.

Research into the nature of adult thought and intellectual performance has been a pursuit of psychologists for over a century. The recency of the biocultural dynamics of aging have permitted researchers and theoreticians to document the irregularity and instability of developmental functions during the process of aging. Thus, the nature of individual differences in aging is important to consider in constructing a model or theory of adult cognitive development. This, plus other research in intelligence, has led to a number of issues and debates regarding our existing knowledge about the construct of intelligence itself (Weinberg, 1989).

Sternberg and Berg (1986) reviewed the dominant attributes that appeared in both present and past definitions of intelligence and noted that attributes such as adaptation to the environment, basic mental processes, and higher order thinking had been dominant and have remained so. Differences appeared along the lines of metacognition and executive processes with emphasis on the role of context. As a construct, intelligence was tied to the concept of academic achievement. Three major views of intelligence dominated the literature and research base: the psychometric, the Piagetian, and the information-processing models (Wagner & Sternberg, 1984).

As research into intelligence reached across the lifespan, the movement from a discontinuous developmental view of intelligence toward a continuous developmental pattern emerged (Weinberg, 1989). Such tasks as adjusting to unfamiliar life situations (adaptation), problem solving abilities, and information processing components appeared to exist, not at any one stage but throughout

the course of an individual's life (Weinberg, 1989). It is these kinds of continuous features that led Sternberg (1985a, 1985b, 1985c; Sternberg & Wagner, 1986; Wagner & Sternberg, 1984) toward formulating a more practical theory of intelligence.

In a study conducted by Sternberg, Conway, Ketron, and Bernstein (1981), adults were asked, "What is intelligence?" There was agreement on three facets of intelligence: (1) practical problem-solving ability, (2) social intelligence, and (3) verbal ability (including speaking and reading). In expanding the concept of intelligence, Walters and Gardner (1986) proposed seven intelligences or a "multiple theory of intelligence." This theory addressed the following kinds of intelligences: musical intelligence, bodily-kinesthetic intelligence, logical-mathematical intelligence, linguistic intelligence, spatial intelligence, interpersonal intelligence and intrapersonal intelligence. Although there are criticisms regarding this theory, it is reflective of the movement towards more accurate measurement and more encompassing definitions of intelligence.

Sternberg (1987) developed a triarchic theory of intelligence to account for the multiplicity of intelligences and to explain how intelligence functions beyond the research laboratory and formal psychometric situations. This theory is explained under a later section because it has implications for exceptionality.

Intellectual Development in the College Years: Perry (1970 and 1981) proposed a scheme of intellectual and ethical development or, as he stated, "the evolving ways of seeing the world, knowledge and education, values, and oneself" (Perry, 1981, p. 78) throughout the college years . This scheme has been used among college educators to develop curricula in courses that progress from an introductory level through to the final years of the educational plan. Other researchers have looked at the scheme and have validated the

developmental positions that Perry outlined (see Brabeck, 1984; Carrier, 1981; Gordon, 1981; Schmidt, 1985).

From longitudinal studies conducted with undergraduate students, Perry (1970) described the students' patterns of thought and the changes that developed over time. The movement or development of these patterns began with the students' dualistic view of the world which became modified with the acceptance of multiple world views and subsequently the discovery of relativism. From the onset of the discovery of relativistic views, students then progressed to an affirmation and acceptance of relativism. Not every student progressed smoothly through these phases, some temporized (waited until some event forced them into a decision or towards further development), some retreated (abandoned further progress but often with an added moralistic righteousness) or escaped (felt alienated) from further progression.

With the movement from dualism to relativism, Perry (1980) described nine different "Positions" or levels which coincided with this progression. As guidelines to the development of student thought, Positions 1 to 4a characterize the dualistic nature of student thought with movement to multiplicity. Positions 4b to 5 conform to the discovery of relativism and Positions 6 to 9 indicate the commitments made in the developed relativism. To summarize these Positions, Cross (1981) characterized them as follows:

> Position 1: The student sees the world in polar terms of we-right-good vs. other-wrong-bad. Right answers exist for everything. The role of authority is to teach them. Knowledge and goodness are perceived as quantitative accretions of discrete rightness to be collected by hard work and obedience.
>
> Position 2: The student perceives diversity of opinion and uncertainty and accounts for them as unwarranted confusion in poorly qualified

authorities or as mere exercises set by authority "so we can learn to find the answer for ourselves."

Position 3: The student accepts uncertainty and diversity as legitimate but still temporary. He/she supposes authority grades him/her in these areas on "good expression" but remains puzzled as to the standards.

Position 4: (a) The student perceives legitimate uncertainty to be extensive and raises it to the status of an unstructured epistemological realm of its own in which everyone is entitled to his/her own opinion, where right and wrong still prevails; or (b) the student discovers qualitative contextual relativistic reasoning as a special case with the authority's realm.

Position 5: The student perceives all knowledge and values as contextual and relativistic.

Position 6: The student apprehends the necessity of orienting him/herself in a relativistic world through some form of commitment.

Position 7: The student makes an initial commitment in some area.

Position 8: The student experiences the implications of commitment and explores responsibility.

Position 9: The student experiences the affirmation of identity among multiple responsibilities and realizes commitment as an ongoing activity.

The impact of Perry's (1970) original work has influenced others in continuing the research that he began and in refining methodology in pedagogy. Thompson, a professor from St. Thomas Moore College at the University of Saskatchewan, in testifying on the impact of Perry's Network, said, "For the first time, I have a somewhat coherent way of thinking about student development, in ways that make intuitive and experiential sense to me as a

student, as a teacher, and as someone trying to make sense of the world myself" (personal communication, Spring, 1991).

Self-Efficacy: Self-efficacy is the individuals' beliefs in their capabilities to perform or exercise control over the events that affect their lives, including thought processes, motivation, and action (Bandura, 1989; Cooper & Good, 1983; Schunk, 1984, 1989). Research has shown that it affects persistence, task choices, effort expenditure, and actual task performance (see Bandura, 1989; Bandura & Cervone, 1983; Locke, Shaw, Saari, & Latham, 1981; Schunk, 1984, 1989; Schunk & Gunn, 1986). Students will differ in how efficacious they feel about being able to perform and attain their goals. The sense of self-efficacy is influenced by such factors as the students' perceived abilities, previous experiences, attitudes toward learning, instructional factors, and social factors.

As well as affecting motivational processes, self-efficacy appears to influence the speed of recovery during difficult times. It also affects how much stress and depression will be experienced during these times (Bandura, 1989). According to Bandura (1989) and Seligman and his associates (Garber & Seligman, 1980; Seligman, 1991), those individuals who believe they cannot manage potential threats experience high levels of anxiety arousal and stress. The level of functioning decreases and a perceived learned helpless situation ensues.

For those individuals who persist and master their difficulties, a valuable learning experience takes place. They become convinced that they can persevere in the face of adversity and eventually emerge with a stronger sense of self since actual behaviors modify self-efficacy beliefs (Schunk, 1989). Positive self-efficacy, therefore, sustains task involvement, leading to skill development and performance accomplishments which further enhance the individual's sense of efficacy (Jagacinski & Nicholls, 1987; Schunk, 1989). It is

the experiences of individuals that will determine the strength of self-efficacy; individual students must act in order to receive information which will confirm or disconfirm their beliefs about themselves. A degree of situational control must be inherent in the feedback to maintain this perception of control.

A lesser belief in self-efficacy has been shown to be associated with less persistence. Researchers have found that failure has a more deleterious effect on performance when the students felt they were unable to personally alter negative circumstances (Andrews & Drebus, 1978; Lefcourt, Hogg, Struthers, & Holmes, 1975; Riemer, 1975). As Cooper and Good (1983) have stated, "...It seems that the effects of feeling little personal control, or specifically, little effort-outcome covariation, may be (1) negative affect and attitudes towards tasks presented, (2) less persistence in the face of failure, and (3) a greater incidence of failure" (p. 32).

Social Support: Support for educational endeavors plays a role in the ability of the students to cope with and persist in the demands of postsecondary schooling (see the section on Attrition and Retention in Postsecondary Education). Wang, Haertel, and Walberg (1990) noted the importance of support variables in their review of the literature regarding the influences that contribute to learning. They noted that, recently, more attention is being paid to the role of parent, peer groups, and other support variables.

Although various definitions abound in regards to what constitutes social support, it is agreed throughout the literature that socially supportive relationships and effective social networks contribute to mental and physical health (Pearson, 1986). Cobb (1976) identified three components of social support: (a) information that one is esteemed and valued, (b) information that one is cared for and loved, and (c) information that one has group membership or that one belongs to a group. Strong social support also positively influences

coping strategies under periods of psychosocial stress and is functional in maintaining the health of the individual. It is the quality of the social environment that affects the individual's capacity to cope (Leavy, 1983).

In mental health studies, researchers have defined and categorized support in different ways which appear relevant to continual healthy coping. Dean and Lin (1981) identified two types of social support: (a) instrumental, which is a tangible form of assistance such as lending money, and (b) expressive support which was less tangible and related to companionship issues or "being there" in time of need. Gottlieb (1978) divided social support into four categories: (a) emotional support, (b) problem-solving support, (c) "being there," and (d) social advocacy.

Effective social support is derived from families (including spouses), friends, neighbors, and co-workers, or in the case of educational systems, other students (Gottlieb, 1978; Schlossberg, 1984). On the other hand, Coyne and DeLongis (1986) indicated that social support systems, especially family members, can be major sources of stress when they become overprotective, overly intrusive or self-sacrificial, or make excessive demands on one individual within the family structure.

Literature pertaining to the management of postsecondary institutions (see Hossler, Bean, & Associates, 1990) and literature relating to retention and attrition rates in two- and four-year colleges (see Raimst, 1981; Tinto, 1987) has indicated that colleges need to consider social support systems as important components of the educational experience. Without effective support systems, students have a higher rate of dropping out or withdrawing from programs. As Hossler et al. have noted, "The types of academic and social services provided for students may influence retention" (p. 127) by enhancing the students' social

integration into the institution and by providing the social support students see as contributing to a satisfactory experience.

B. ADULTS WITH LEARNING DISABILITIES

Much of the research into the nature of adults with learning disabilities has been extrapolated from our knowledge of children with learning disabilities. To some extent, it is valuable to extrapolate, but it is important to keep in mind that there is an accumulation of myriads of experiences that belong to the adult which are qualitatively and quantitatively different from the child. Characteristic symptoms may change as the student matures (Polloway, Smith & Patton, 1984; Ryan & Heikkila, 1988) and academic difficulties may still persist in some LD adults (Goldberg, 1983). Differentiating LD students from underachieving students at the adult level has become important with the advent of postsecondary programs as the latter has often been mistaken for the former (Algozzine & Ysseldyke, 1988; Bursuck & Epstein, 1987; Deshler, Schumaker, Alley, Warner, & Clark, 1982; Kirk, 1987; Mellard & Deshler, 1984; Wilson, 1991).

It also appears that many of the assumptions we make about the nature of these adults have been derived from previous literature on adult development and within specific domains of adult development. With adults with learning disabilities, the focus has appeared to be on the negative aspects or the difficulties these adults may encounter throughout the lifespan. Since the concept of "learning disabilities" encompasses a heterogeneous grouping of different kinds of abilities and disabilities, the list of characteristics often used to describe these individuals is long and varied. It is this heterogeneity of the group that may confound research results (Durrant, Cunningham, & Voelker, 1990).

To review the literature, this section focuses on persons with learning disabilities. In some cases, the review will be sparse, in others, there will be an abundance of research literature from which to draw. Two major issues need to be addressed before reviewing the actual literature and research base: (1) issues in the definition of a learning disability, and (2) issues pertaining to the past research into the nature of adults with learning disabilities. These two issues have influenced the direction of research practices in the field of learning disabilities.

(1) Issues in Definition: Since a proper definition of learning disabilities for school age children is in dispute, it is difficult, if not impossible, to adequately define learning disabilities at the college level (Goldberg, 1983). Therefore, a functional definition of the LD postsecondary student needs to be developed (Vogel, 1987). This definition should constitute a number of components. In addition to academic achievement, adult learning disability considerations should include a number of personal and interpersonal adjustment issues as well as occupational satisfaction and personal independence factors which are beyond the academic setting (Barr, 1989; Johnson & Blalock ,1987; Kronick, 1988; Vetter-Zemitzsch, 1983). See Whyte, Kovach, and Vosahlo (1991a) for a comprehensive listing of interview topics for adults with LD. However, at the present time, no definition accounts for all of these conditions.

This study views adults with learning disabilities as individuals over the age of 18 years who are enrolled in postsecondary institutions and have been assessed and diagnosed as learning disabled by any of the following: school/postsecondary assessment personnel, psychologists, counsellors, and/or medical practitioners. The researcher has, wherever possible, adhered to the following definition of learning disabilities in adults and children:

> Children and adults with learning disabilities manifest a significant discrepancy between their estimated learning potential and actual performance. This discrepancy is (presumed to be) related to basic disorders in the learning process which may or may not be accompanied by demonstrable central nervous system dysfunction and which are not secondary to sensory loss, mental retardation, primary emotional disturbance or environmental disadvantage (Report of the Senate Task Force, 1979, p. 3). *

Many of the students in this study have also identified themselves to individuals in service provider capacities. They have requested support in the form of intervention strategies for assistance for academic endeavors, academic difficulties and/or personal issues.

Several definitions with varying degrees of conceptualization of learning disabilities for children and adolescents abound (Algozzine & Ysseldyke, 1988; Bartoli, 1990; Chalfant, 1989; Hammill, 1990; Keogh, 1987; Mercer, King-Sears, & Mercer, 1990; Kirby, 1991; NJCLD, 1981, 1985; Wong, 1988, 1991) which tend to confuse, rather than clarify the nature of the issue. As Hammill (1990) has stated, "the study of a field cannot begin in earnest until interested individuals have agreed on the definitions of the essential concepts that relate to that field" (p. 74). And Wong (1991) outlined the important conceptual issues pertaining to the definition as being related to the relevance of IQ and etiological variables.

From Hammill's analysis and viewpoint, the definition that is the most likely to be widely accepted is the most current definition provided by the National Joint Committee on Learning Disabilities (NJCLD) and is as follows:

> *Learning disabilities* is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking,

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* This definition, which is one of many, was selected for use in this thesis as it implies the common elements necessary for the definition of a learning disability as indicated by Hallahan, Kauffman, and Lloyd (1985), Kavale and Forness (1985), Learner (1985), and Mercer (1983): (a) neurological dysfunction, (b) uneven growth pattern, (c) difficulty with academic and learning tasks, (d) discrepancy between achievement and potential, and (e) exclusion of other causes.

> reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual, presumed to be due to central nervous system dysfunction, and may occur across the lifespan. Problems in self-regulatory behaviors, social perception, and social interaction may exist with learning disabilities but do not by themselves constitute a learning disability. Although learning disabilities may occur concomitantly with other handicapping conditions (for example, sensory impairment, mental retardation, serious emotional disturbance) or with extrinsic influences (such as cultural differences, insufficient or inappropriate instruction), they are not the result of those conditions or influences. (NJCLD, 1988, p.1)

Although a proper definition of adults with learning disabilities is currently in question, the need to define this condition becomes more important as more evidence accumulates which indicates that the condition is neither curable nor transient (Buchanan & Wolf, 1986; Gerber, Schneiders, Paradise, Reiff, Ginsberg, & Popp, 1990; Lieberman, 1987; Ryan & Heikkila, 1988). Increasing numbers of these individuals are entering postsecondary institutions and identifying themselves to professionals in these institutions as having learning disabilities (Bennett, Rock, & Chan, 1987; Hughes & Smith, 1990; King, 1987; Nelson, Dodd, & Smith, 1990; Norlander, Shaw, & McGuire, 1990; Saracoglu, Minden, & Wilchesky, 1989; Vogel & Adelman, 1990). In order to provide appropriate intervention strategies, it is necessary to be able to define the condition with accuracy and uniformity.

Assisting the adult with learning problems is of paramount importance in order to provide equal and quality educational opportunities. As Lieberman (1987) so eloquently stated, "Learning disability in adults is meaningful only if it helps people live. This is not an issue of handicapping condition. It is an issue of quality of life" (p. 64).

(2) Issues Pertaining to Past Research into the Nature of Adults with Learning Disabilities: The past five years have seen more of an emphasis on the nature and the functioning of the adult with learning disabilities than have

the previous 25 years. Long-term studies were and still are very difficult to conduct with this population due to a number of factors: issues in definition, selection bias, problems with dropout, early school leaving, unexplained attrition rates, refusal to participate in long-term studies, and lack of uniformity of diagnostic procedures among researchers and practitioners. To assist in confounding the research, the nature of adulthood and adult outcomes supports a broad literature base.

Short-term follow-up research has been easier to conduct but is still plagued by many of the problems inherent in other studies, particularly selection bias, issues in definition and diagnostic procedures, and unexplained attrition rates from the study, as well as the heterogeneity of the group. Consequently, tentative results have been, at times, contradictory or confusing. Another area which has not been clearly researched has been the evaluation of treatment effectiveness programs for LD students (Hughes & Smith, 1990; Kavale, 1990; Kirk, 1987; Lyon & Moats, 1988; Ryan & Heikkila, 1988).

A number of college programs currently exist for students with learning disabilities. However, as Hughes and Smith (1990) discovered in their review of the literature, the majority of the articles pertaining to these programs contained descriptions of students and programs. What appeared to be lacking was empirical evidence into the types of interventions that work and the types that do not. In one of the few studies to evaluate postsecondary LD programs, Vogel and Adelman (1990) found that various intervention strategies do assist LD students in completing their educational programs. To date, effective programming interventions for the LD adult at the postsecondary level have not yet been sufficiently established in the literature and questions regarding the nature of the "academically qualified" postsecondary LD student have yet to be answered (Scott, 1990; Vogel & Adelman, 1990).

(a) Characteristics of Adults with Learning Disabilities

Most descriptive studies of adults with learning disabilities have focussed on difficulties or disabilities. Very few research studies have attempted to identify the elements of success among this group. Deshler (1978), in referring to adolescents, could have referred to adults as well when he stated:

> Few researchers or authors have emphasized the areas of strength of (the) learning disabled.... Most characteristics are defined in terms of weakness and do not consider integrities that are available for compensating for the deficit or circumventing it. (p. 70)

In evaluating the social skills of LD adults, Kronick (1981, 1989) contended that many of these individuals display adequate social skills. Saracoglu, Minden, and Wilchesky (1989) also reported wide ranges of scores on a social adjustment scale indicating that many saw themselves, in varying degrees, as socially adjusted. Alley and Deshler (1979) reported that adults who have learning disabilities may be quite successful and well adjusted in personal and occupational life. Kistner, Haskett, White, and Robbins (1987) found that LD student's self-evaluations of their social competence and self-worth did not differ from normally achieving students except in cases where the LD children had behavioral difficulties or unrealistic expectations of their abilities. Recent research with children has also revealed that there is a substantial group of LD children who do not exhibit socioemotional difficulties and, in fact, are not distinguishable from their non-LD peers (Durrant, Cunningham, & Voelker, 1990). Durrant et al. also noted that LD children's self-concepts appeared to be related to behavioral difficulties primarily and the learning disability secondarily.

However, given the emphasis on the negative educational, personal, career and social experiences encountered by these individuals, the author has

chosen to begin in a different vein by outlining the characteristics of successful LD adults as indicated by the findings of Gerber, Ginsberg, and Reiff (in press; see also Gerber & Ginsberg, 1990) who sought to outline the alterable variables of success among a highly successful sample of LD individuals. Their research question was based on the premise that a number of individuals with handicaps develop extraordinary abilities due, in part, to the deficits caused by their handicaps.

Success was defined across five variables—income level, job classification, education level, prominence in one's field, and job satisfaction. Those adults who were considered highly successful (N=46) and moderately successful (N=25) were included in the study. Results indicated that the key to success for adults with learning disabilities was 'control,' a theme which persisted across the entire sample. In order to invoke aspects of control, the highly successful group made internal decisions which were subsequently translated into external manifestations or adaptations. The moderately successful group employed similar strategies but were not as fervently adamant or persistent in achieving similar outcomes.

Internal decisions revolved around issues of desire to succeed, goal orientation or goal setting, and reframing the concept of a learning disability into a positive and productive construct. The resultant adaptations which manifested themselves as external behaviors related to persistence, matching individual strengths with the work environment, manipulating the system in order to avoid exposing weaknesses, and surrounding themselves with supportive networks. There was also a general consensus among the subjects that school played a relatively minor role in contributing to their success.

It is of primary importance to note that part of the key to successful behavior and adaptation lies in the concept of 'control' and the positive

reframing of the disability. Other studies have looked at locus of control coupled with explanatory style, causal attributions or expectancy theory (Strickland, 1989) and have continually indicated that persons who feel they have some control over their lives are generally more satisfied with life or less depressed than those who feel that they have little control over what happens to them (see Garber & Seligman, 1980; Peterson et al., 1987; Seligman, 1991; Wiener 1980a, 1980b). The previous section on achievement motivation has dealt with control issues.

A number of studies have researched the issue of locus of control and have found that elementary and adolescent students with LD display external locus of control beliefs for success, or they are passive learners (Durrant, Cunningham, & Voelker, 1990; Hallahan, Gajar, Cohen, & Tarver, 1978; Licht et al., 1985; Rogers & Saklofske, 1985; Tollefson, Tracy, Johnsen, Borgers, Buenning, Farmer, & Barke, 1980). Heyman (1990) found, in an LD children's study, that self-perception of one's disability was related to academic self-concept and self-esteem. These findings are similar to the results of Rogers and Saklofske (1985) who found that LD children had lower self-concepts and more external locus of control beliefs than do normal achievers. However, the children also differed among themselves on these variables. LD children with external locus of control beliefs and high academic self-concepts were more successful than children with internal beliefs and low academic self-concept. Previous studies have reported that the self-perceptions of LD children were more negative than those of their non-LD counterparts (Chapman, 1988; Chapman & Boersma, 1979, 1991; Kistner & Osborne, 1987; Winnie, Woodlands, & Wong, 1982). Saracoglu, Minden, and Wilchesky (1989) found that a sample of university students with learning disabilities (N=34) reported lower self-esteem perceptions than a group of non-LD students (N=31). In this

study, self-esteem correlated positively with self-efficacy and adjustment to university.

In a comprehensive study to identify the characteristics of persons with learning disabilities, Buchanan and Wolf (1986) found that the self-identified strengths most frequently mentioned by the adults with LD in the study (N=33) were: easy to get along with, ambitious, optimistic, enthusiastic, creative, manual dexterity skills, critical thinking skills, strong verbal skills, and a good memory. On the other hand, the most frequently cited problem areas were: hyperactivity, organizational difficulties, affect, self-image and motivation problems. Barr (1990) found that the LD adults in her study identified similar strengths but she noted other difficulties besides self-image problems: communication problems, career issues, and a paucity of satisfactory friendships. In support of the creativity response, Gregg and Hoy (1984) found LD college students scored significantly higher on the Figural Creativity Index from the Torrance Test of Creative Thinking than a comparative non-LD sample.

Studies looking at LD adult adaptation and adjustment issues have reported varied results. According to Johnson and Blalock (1987), "all learning disabilities interfere, to a certain extent, with independence and daily functioning" (p. 43). The adults in their research sample (N=93) described difficulties relating to social maturity, following directions, memory problems, sequencing difficulties, inability to communicate with others, mastering transportation skills, job related concerns, and problems with organization and planning. The group, as a whole, had a relatively high level of education: approximately 25% were either college undergraduate or graduate students at the time of the study, 15% held undergraduate and graduate degrees, 27% had some college training, 26% held high school diplomas with many of these planning to continue their education, and 5% had less than 12 years of

schooling. However, school histories revealed chronic long-term educational problems such as grade failures, special school or class placements and continual tutoring due to learning difficulties, and speech problems. University students, in a descriptive study (Kovach, Whyte, & Vosahlo, 1991), identified many of the same educational problems but also indicated that they had chronic ear problems as children.

Sitlington and Frank (1990) looked at the transition from school to work, for 911 LD graduates (graduation classes of 1986 and 1987) out of school for one year. They concluded that even though the students were employed at a respectable rate, the number of individuals in low-status occupations was discouraging, especially for females. This is similar to the findings of Barr (1990), examining the adaptations of LD adults in four life domains: career, family, relationship, and inner life. Sitlington and Frank (1990) also noted that a large number of the students were still living at home one year after graduation. Barr, however, found relatively equal numbers of individuals in the LD and non-LD group living independently. Her groups were older than that of Sitlington and Frank and this is obviously reflected in the results.

According to Hughes and Smith (1990), LD college students are of average or above average intellectual ability. Whyte, Kovach, and Vosahlo (1991b), in a study of 106 LD university students, found a mean Full Scale IQ score of 106.3 (SD = 10.9) on the WAIS-R. This mean score is consistent with mean scores obtained in other studies (see Hughes & Smith, 1990, pp. 68-69 for a summary of other research). Variability on subscale scores was evident and problems in reading (comprehension, decoding, speed of reading), written language (grammar, sentence structure, spelling, error monitoring), and math (fractions, calculation) have been noted (Adelman & Vogel, 1990; Runyan,

1991; Vogel & Adelman, 1990; Whyte, Kovach, & Vosahlo, 1991a; Whyte, Kovach, & Vosahlo, 1991b).

In assessing the study skills of 42 LD university students, Kovach, Whyte, and Vosahlo (1991) used the Learning and Study Strategies Inventory (LASSI), which is made up of ten scales and was developed by Weinstein (1987). They found that the most severe difficulties were experienced by these students in the areas of: (1) academic motivation, (2) selecting main ideas, (3) use of support techniques and materials, and (4) testing taking strategies. Areas of severe difficulty were defined by mean scores below the 50th percentile. The group exhibited a strength in the area of information processing, with a mean score above the 75th percentile. Of the remaining 5 scales from the LASSI (concentration, anxiety, time management, self-testing strategies, and attitude), the mean scores for the group fell between the 50%ile and the 75%ile. Other difficulties reported in the literature for postsecondary LD students are: processing speed, verbal fluency or ability to say what one means within a reasonable length of time, word retrieval, foreign language acquisition deficits, memory problems, difficulties in auditory processing (listening during lectures), note taking problems, problems with listening and taking notes at the same time, attentional problems, inability to complete work within the specified time period, academic motivation, test anxiety, organization and planning, and difficulties with or lack of study skills.

The complexity and magnitude of isolating the difficulties of the students with learning disabilities is most clearly illustrated by Smith (1985) in a discussion concerning school children and adolescents:

> If we have learned one lesson from (the)...effort in 1966 to list the 99 characteristics attributed to individuals we now call learning disabled, it would be that there exist 4851 possible pairings of any two of these characteristics. What then is the likelihood of (the)

> 461st client sharing three, four, or even fifteen characteristics in common with any previous student...? The answer is evident. The group we call learning disabled is so highly heterogeneous that no two students are likely to share precisely the same assessment and teaching needs. (p. 513)

(b) Theories Pertaining to Adults with Learning Disabilities

Adult Development: Polloway, Smith, and Patton (1984) postulated that adults with learning disabilities should not be viewed as grown-up learning disabled children but rather they should be viewed within the context of adulthood. With a focus on the lifespan developmental model, they reiterated the four major assumptions and propositions that orient such a model: (1) development is a lifelong process, (2) development is expressive of ontogenetic and evolutionary principles, (3) development is multidirectional, and (4) all developmental periods, together, provide for an integrated framework of adaptation.

Related to these propositions is the individual's adaptability to life events. Four mediating variables define the strengths and deficits that each individual uses to cope with these life events. The first variable, the biological and intellectual variable, which includes health and cognition, is of concern for the study of LD adults only in the area of cognition. Cognitive factors (such as memory, attention, concentration, organization, comprehension, perceiving relationships, etc.) are important in assisting individuals to accurately appraise situations and to select appropriate coping strategies. If problems exist in this area, coping and adaptation may be limited.

The personal and social variable deals with personality constructs and the network of support and interpersonal relationships that an individual establishes. Support systems have continually been implicated in effective coping strategies. Therefore, the development of friendships, the formation of strong bonds among family and friends, and the development of appropriate

social skills is important to anyone especially in times of crisis. With LD adults, a variety of studies have noted that some groups have poor social skills, difficulty in social situations, and difficulty in reading social cues. Therefore, they may be at risk to weather crisis situations without effective support networks and a strong sense of self.

The variable which outlines past experiences and anticipatory socialization utilizes the concept of past experience as the best predictor of future behavior in similar situations. If past experiences have been negative and resulted in failure, individuals may be apprehensive about future events. Polloway, Smith, and Patton (1984) indicated that for those LD students whose past is riddled with failure, the future is anticipated with a sense of defeat.

The last variable important to one's ability to adapt to life events is the locus of control variable, which deals with the perceived degree of control that one has over life events. External locus of control attributions for success have been repeatedly documented in the research of school aged LD individuals. If LD adults exhibit a similar pattern, a feeling of powerlessness or helplessness in adulthood may impede future progress and adaptability.

For Polloway, Smith, and Patton (1984), the reconceptualization of learning disabilities from an adult developmental perspective, focussed the issues encountered by this group in both the educational and noneducational domains of life. This has implications for school/institutional and nonschool/noninstitutional sources when designing appropriate programs and support systems for these individuals. Understanding the nature of the LD adult and adulthood in general is important for providing a proper perspective from which to determine successful adaptations to life events.

Cognitive Development: Although the issue of sufficient and parsimonious theories or paradigms to account for the nature of learning

disabilities is in question (Kavale, 1987; Torgesen, 1987; Wong, 1979), two different viewpoints are currently offered in the literature to explain the cognitive difficulties noted among those individuals with learning disabilities. These two explanations are based on the beliefs that a learning disability is a consequence of either a lag in development, or a processing deficit.

In this review, Piagetian theory has been applied to "the developmental lag model" of cognitive functioning and Sternberg's triarchic theory of human intelligence is explained in the context of "the deficit model." Sternberg has been selected as representative, because his theory addresses an encompassing view of learning disabilities (see Sternberg & Wagner, 1982, for alternative views of the deficit model). The "developmental lag model," to date, has not gained a significant following among many researchers in the area of LD as it does not explicate entirely the LD phenomenon. The research and theorizing has been based on the "deficit model."

In an outline of Piaget's theory of cognitive development, Fakouri (1991) looked at the application of the theory to the field of learning disabilities and concluded that the theory supported the developmental lag approach especially in the preoperational and concrete operational stages of child development. Since the sensorimotor stage focuses on skills that are nonverbal and directed towards purposeful movement, the manifestations of a learning disability are not apparent or are not meaningful at this stage of development. However, during the preoperational and concrete operational stages, skills such as centration, seriation and conservation tasks may not develop at the same rate among children with learning disabilities as with normal children. The aforementioned skills are necessary for reading acquisition skills, basic arithmetic skills, and understanding math instruction. As well, perceptual problems are apparent in

skills such as reading symbols. However, Fakouri noted that logical reasoning does not appear to be significantly impaired.

The controversial last stage of thought and intellectual development, the formal operations stage, is not considered part of the developmental lag model as not everyone reaches this stage. According to Fakouri, this is not to say that different forms of learning disabilities do not exist in individuals at this stage, but rather that the lag occurred in the mechanical aspects of a skill during the two previous stages. The LD individuals may have problems in certain cognitive areas but otherwise might operate at the formal operational stage. The controversy over this being the last stage of development has not yet been resolved. Arlin (1984) has proposed the possibility of a fifth stage that deals with the qualitative nuances of adult thought and this has not been applied to the field of learning disabilities.

Kolligan and Sternberg (1987) adapted Sternberg's (1985b) triarchic theory of intelligence to include a componential-deficit approach to learning disabilities. The basic components of the theory which are often interrelated and interdependent rest on three subtheories: (1) the contextual subtheory which looks at processes of adaptation, shaping, and selection, or more specifically, the relationship between intelligence and the external world of the individual, (2) the experiential subtheory which tries to outline the individual nature of intelligence and its relationship to life experiences, i.e., the movement from performance in novel situations to automatized performance, and (3) the componential subtheory which deals with the relations between intelligence and the internal or mental world of the individual, i.e., information processing.

The contextual subtheory is composed of hierarchical stages which flow from adaptation to shaping to selection within one's environment. In this portion of the theory, which is not a determinant of learning disabilities but rather a

modulator of the severity of the disability, an individual's ability to adapt to the learning environment or any other environment (e.g., social situation, work environment) is vital to the well-being of the individual. For those students with learning disabilities, it is frequently the classroom situation that exposes their learning problems. Other situations may also pose difficulties for them. However, the classroom is usually the context in which they are identified and diagnosed as having a learning disability.

The experiential subtheory postulates that individuals move from novelty tasks to familiarity of tasks or from controlling to automatizing performance as they gain more experience. However, lower level skills must become automatic so that mental resources are available for higher level operations. Failure to make information processing at lower operational levels automatic may be indicative of many learning disabilities. This means that extra attention and effort need to be exerted on tasks. Content specific motivational factors may also influence the rate of automatization. Given the documented lower competence perceptions, motivational difficulties, and difficulties in dealing with novelty situations of many children with LD, it appears that experience plays an important part in the manner with which they approach tasks and the motivational levels that are employed to perform these tasks.

Componential subtheory specifically relates to information processing and is reflective of higher order executive processes (metacomponents), performance, and knowledge-acquisition components. Metacomponents are the source of individual differences in intellectual behavior and include:

> (a) definition of the nature of the task, (b) selection of lower order processes to accomplish the task, (c) formation or selection of one or more strategies into which to combine the lower order processes, (d) formation of a selection or a mental representation upon which the lower order processes act, (e) allocation of mental

> resources in task performance, (f) monitoring of one's task performance, and (g) evaluation of one's task performance. (p. 9)

Although the metacomponent is not generally reflective of LD characteristics, it may indirectly affect these individuals through memory deficits, specifically working memory which plays an important role in this part of the subtheory. Performance components, on the other hand, are lower order nonexecutive components involved in carrying through plans and strategies and may be involved in the difficulty that particular students have with classes of tasks. Knowledge-acquisition components are of the same order as performance components but are used in the learning of new information and are comprised of (a) selective encoding processes, (b) selective combination processes, and (c) selective comparison processes. Each of these processes can either facilitate or constrain the learning of new information. Therefore, this may be a key factor identifying characteristic problems among persons with learning disabilities.

The strength of Kolligan and Sternberg's theory lies in its contextual and experiential emphasis. Although the theory may not hold across cultures, Kolligan and Sternberg remind us that the definition of a learning disability has come as a result of the importance that our society places on the skills of reading, writing, and arithmetic calculation. Given the paucity of theories which explain learning disabilities in their entirety, this theory appears to be the most inclusive and comprehensive approach we currently have to a paradigmatic structure in the explanation of learning disabilities.

C. SUMMARY

Chapter two has reviewed two very broad bases of literature: theories of adult development and research on adults with learning disabilities. In order to

review the literature in a short format, the author had to be selective of the information available. The review began with adult theories of development and covered age/stage developmental patterns and specific domains within the life span model such as: ability formation theory, academic self-concept, attrition and retention in postsecondary education, achievement motivation, cognitive development (general), intellectual development in the college years, self-efficacy, and social support. The next section reviewed the literature on adults with learning disabilities indicating that there were two important areas of concern in this literature: the issue of a proper definition of a learning disability and issues in the research of adults with learning disabilities. Subsequently, the chapter looked at the characteristics of adults with learning disabilities, including college students, and reviewed developmental and cognitive theories pertaining to LD adults.

Many of the issues raised in the research regarding the nature and functioning of the adult student have provided direction for future planning and research in adult education. There is very little information directly related to research which looks at the perceptions that adults have regarding the behaviors and components representative of academic ability. Although ability formation theory partially addresses this type of research, it is mostly based on studies conducted with school-aged children. Very little has appeared defining the nature of adult perceptions on this issue.

III. METHOD

A. PURPOSE

In order to discover more about adult students with learning disabilities, the study was designed to investigate and compare this group's perceptions of abilities in academic settings with a non-learning disabled group of adult students. Therefore, the two groups surveyed were postsecondary adults with learning disabilities and postsecondary adults who had not been diagnosed or labelled as having "learning disabilities." In order to determine the nature of these students' perceptions, two factors were considered: (a) the students' own ratings of their academic skill development levels, and (b) descriptions of the behaviors that the students felt were important in identifying successful and unsuccessful learners.

This type of knowledge is essential for educators of adults as a basis for understanding the nature of the students we seek to educate. The nature of students with learning problems has become a strong focus in educational research in the last two decades. Since there is a paucity of research into the nature of adult students' perceptions of what variables define success and failure, this type of a study would provide some of this missing information, particularly regarding students with learning disabilities. This same information could be potentially valuable in providing guidelines for educators when planning programs for postsecondary adults as well as assisting the students in distinguishing between good learning strategies versus myths about these behaviors.

Subsequently, a two part questionnaire was designed to determine these perceptions (see Appendix C). It was presumed that Part I of the study would

provide information about the nature of both groups' self perceptions of overall academic ability which had been previously documented by other researchers (see Chapter II - Literature Review). Part II of the study was designed to provide more specific information about the two groups' perceptions regarding the kinds of behaviors that would contribute to successful or unsuccessful academic functioning.

The first part of the questionnaire asked students to rate themselves on a number of attributes that have become closely associated with successful performance in academic settings. The research question addressed in this part of the study was whether the two groups of adult students would rate themselves similarly on their abilities to perform academic functions and, if they did not, would their ratings vary as a function of certain types of tasks (factors).

The second part of the questionnaire was designed to investigate the adult students' perceptions of the constructs and operational behaviors involved in obtaining high and low grades. It was both descriptive and exploratory in nature and sought to identify operational themes commonly ascribed to high and low achievers. The research questions for this part of the questionnaire looked at overall themes that emerged for each of the questions in Part II of the questionnaire and asked if there were any similarities between the two adult groups (non-learning disabled vs. learning disabled) on the themes that emerged within each question. As well, another research question asked whether the sample formed any identifiable patterns of thematic similarity or difference along the dimensions of gender, age and number of years of attendance at a postsecondary institution (PSI).

B. PROCEDURE

A sample of 349 students from 13 postsecondary institutions of higher learning were surveyed (12 in Alberta and one in Nova Scotia). Of this total sample, 140 were students previously identified to have learning disabilities and 209 were students who had not been identified as such. Since the focus was on adults with learning disabilities, contact people (counsellors and instructors) in each PSI were established through the various Student Services Departments in the province and two other provinces, Ontario and Nova Scotia. These two provinces were known to have formal or informal services for students with learning disabilities. The list of contacts was constructed from Calendar Guides, the researcher's knowledge of people working in the field of learning disabilities, and the membership list for AHSSPPE, the Association of Handicapped Student Services for Programs in Postsecondary Education, which has the most comprehensive list of service providers in North America (see Table 1 for a list of PSIs contacted).

Table 1.

Postsecondary Institutions Contacted

COMMUNITY COLLEGES
Alberta College of Art
Camrose Lutheran College
Concordia College
Fairview College
Grande Prairie Regional College
Grant McEwan Community College
Keyano College
King's College
Lakeland College
Lethbridge Community College
Medicine Hat Community College
Mount Royal College
Olds Community College
Red Deer College

TECHNICAL SCHOOLS
Northern Alberta Institute of Technology
Southern Alberta Institute of Technology
West Terra Institute of Technology

UNIVERSITIES
University of Alberta
University of Calgary
University of Lethbridge

OUTSIDE THE PROVINCE
Mount Saint Vincent University (Nova Scotia)

York University initially expressed interest but subsequently did not participate in the study as a number of graduate students from within the province were conducting studies at the same time with the LD adult students. This affected the total number of university students with learning disabilities in the study as the program at York University had approximately 150 identified students. The researcher, therefore, had to extend the time of data collection in order to more closely approximate the intended number of questionnaire responses from the group with learning disabilities. For each group, a sample size of approximately 100 was required in order to conduct the analyses.

Initial contact was made by telephone. The objectives of the research were outlined as was the kind of sample that was to receive the questionnaires (i.e., students who were accepted into programs that were not of an upgrading nature but which required a high school diploma or mature student status to qualify). The counsellors who dealt with the students with learning disabilities identified an approximate number of potential LD students who would request help during the subsequent four months. To receive the questionnaire as a learning disabled student, students had to have been identified through formal assessment measures by psychologists or educators. This did not present a problem since any students with learning disabilities receiving services through

a PSI had to have been assessed as LD prior to entering the institution or at the time of request for services. All services to these students are provided through Offices of Student Services or Offices of Services for Students With Disabilities.

Most of the counsellors expressed interest in the project and accepted the responsibility for the distribution and collection of the questionnaires to the students who had learning disabilities. In order to obtain an equivalent size sample of students without learning disabilities, the counsellors also provided the names of instructors within their PSIs who might be willing to distribute questionnaires to students in their classes. Each of the instructors was contacted (by the researcher or by the counsellor) and arrangements were made for the distribution and the collection of the questionnaires.

Each contact person was mailed a questionnaire package which contained the following items: (1) a covering letter explaining the purpose and importance of the study [Appendix A]; (2) a list of all materials included in the package that the contact person was receiving [Appendix E]; (3) a package information sheet which stated the number and type of questionnaires included [Appendix E]; (4) a set of instructions for administrators [Appendix E]; (5) a "request for research results" form [Appendix D]; and (6) a self-addressed prepaid return envelope or courier instructions. For those contact persons who were distributing questionnaires to students with learning disabilities, at least one taped version of the questionnaire was included for those students who have dyslexia or severe reading difficulties (Appendix B). For students with dysgraphia (severe writing problems), the use of a scribe was acceptable.

Each questionnaire form for the students included: (1) a covering letter outlining the purpose and importance of the research project, the parts of the questionnaire, instructions for completing and returning the questionnaire; (2) a student information form; (3) Part I of the questionnaire; (4) Part II of the

questionnaire; and (5) a "request for research results" form [Appendices A to D]. The taped version contained the same information but also included recording instructions. The questionnaire information was read onto an audio cassette tape with space left on the tape for the student to record the answers to Part I and Part II of the questionnaire.

All packages were mailed out between September and October of 1989 and 1990. The second mailing in 1990 was intended to increase only the number of students with learning disabilities in the study as the 1989 mailing had produced over 100 non-learning disabled returns but not an acceptable number of LD returns. A time limit specified as the end of November was indicated for both mail-outs and the majority were returned within this time limit. In January of each year, a telephone follow-up was attempted in order to retrieve the last few surveys. The follow-ups resulted in 11 more returns.

(a) Survey Sample

The total sample (349 students) selected for the survey was comprised of adult students from various postsecondary institutions across the province of Alberta and a university in Nova Scotia. It was mandatory that the institution have a method of accessing and/or identifying their LD students. The actual list of postsecondary institutions selected was determined by potential access to a group of students who had learning disabilities. If the institution did not have any way in which to provide services to these students or identify them, they were eliminated from the list. If a method of identifying LD adults was possible, then an equal sized comparative sample of non-learning disabled adults was sought.

At the time of the data collection, only two formal programs for university students with learning disabilities existed in Canada: the program at York University and the program at the University of Alberta. Some informal

assistance was available to these same students at Mount Saint Vincent University due to the interest of one of the professors. Other postsecondary institutions could not guarantee access to these students as any assistance the students would seek would be strictly at random, thus, no questionnaires were sent to them. No other formal programs for students with learning disabilities existed in the province of Alberta at the time of data collection, although a number of PSIs had set up informal systems to assist the students if they could provide a formal assessment to the PSI counsellor. Therefore, these institutions were also accessed due to the number of limited programs in universities.

The adults with learning disabilities in the study were not assessed by the researcher as it was more feasible to access institutions which had students who had already been formally assessed. Although there are variations in the determination of a learning disability (see Appendix G), it was felt that the students who had identified themselves to a Student Services department for assistance were doing so because of learning difficulties and that they had either been previously assessed several times before reaching adulthood or they had had learning problems at the PSI and were assessed as a result of a request for help with their learning problems. Therefore, another assessment was not necessary.

For those adults who were not learning disabled, no formal assessments were conducted. An adult without learning disabilities was considered to be an individual over the age of 18 years who had not ever been assessed and/or diagnosed as having a learning disability. Given this definition, the possibility did exist that some of the adults in the study were adults with learning disabilities but were either unaware of this or chose not to disclose it.

According to the Alberta Advanced Education 1988-89 Annual Report, there were approximately 96,500 students enrolled full time in various PSIs

throughout this province alone. This figure includes both learning disabled and non-learning disabled students. No figures are available for learning disabled students registered in programs. Given the total number of students in postsecondary institutions during the 1988-1989 academic year, it is clear that the number of students in this study is small in comparison to the overall student figures. As well, Mount Saint Vincent University had approximately 3,000 students registered at the time and only 27 questionnaires were completed by these students. No attempt was made to proportionally sample each institution according to its size.

(b) Questionnaire Development

The questionnaire was developed by the researcher and pilot tested in 1989. As a consequence of the pilot project, the questionnaire received minor revisions. A demographic data sheet (Information Form For Students) asked students to identify their age, gender, program of study, the year of study, whether or not they had a High School Diploma, their high school average for the last grade completed, whether they had ever been assessed and/or diagnosed for a learning disability, and the incidence of learning disabilities in their families.

The Self-Rating Scale of Abilities in Part I was developed from a list of attributes developed by Sternberg and Detterman (1986), who attempted to describe the complex operational manifestations of intelligence provided by a group of researchers and theorists prominent in the field of intelligence research. Due to the variety of descriptions provided by the group, Sternberg and Detterman listed only the most frequently occurring attributes. Those attributes that were transformed for use in the construction of Part I of the questionnaire are listed in Table 2.

TABLE 2.
Attributes Considered for Use on the Self-Rating Scale

1. Adaptation, in order to meet the demands of the environment effectively
2. Elementary processes (perception, sensation, attention)
3. Metacognition (knowledge about cognition)
4. Interaction of process and knowledge
5. Higher level components (abstract reasoning, representation, problem solving, decision making)
6. Knowledge
7. Ability to learn
8. Discrete set of abilities (e.g., spatial, verbal, auditory)
9. Speed of mental processing
10. Automated performance
11. g (general intelligence factor)
12. Real-world manifestations (social, practical, tacit)
13. Emotional, motivational constructs
14. Restricted to academic cognitive abilities
15. Ability to deal with novelty
16. Overt behavioral manifestations

Adapted from Sternberg & Detterman, 1986, p.158

The scale was developed because self-concept measures of ability for college-aged populations are virtually nonexistent (see Robinson & Cooper, 1984), although a number are available for school-aged children and adolescents.

Once the attributes had been changed into operational statements, they were placed on a Likert-type scale. Students were asked to rate their perceived levels of ability/competency to accomplish certain academic and personal tasks. The seven Likert scales were labelled "1 - low competency", "2 - moderately low competency", "3 - slightly low competency", "4 - neutral competency", "5 - slightly high competency", "6 - moderately high competency", and "7 - high competency". Twenty-four statements for students to rate themselves on were included in Part I: Self-Rating Scale of Abilities.

Part II: Student Questionnaire was an open-ended survey questionnaire. It was both exploratory and descriptive in nature. The survey was intended for students to identify behaviors that successful students (success was defined by the term 'high grades') and unsuccessful students use (unsuccessful was defined by the term 'low grades'). The questions were developed by the researcher and were piloted with 10 students (5 LD and 5 NLD) who provided feedback on the questions. As well, one of the committee members suggested that two questions be added to the survey and subsequently numbers 14 and 15 were added (No. 14, "When you felt successful in learning, what techniques did you use that contributed to this success?"; No. 15, "When you felt unsuccessful in learning, what techniques did you use that you think lead to your being unsuccessful?").

Respondents were asked not to identify themselves on any of the parts of the questionnaire. However, a request form was included for those who wanted a summary of the results, and to maintain confidentiality, students were asked to return the form separately.

(c) Data Analysis

All analyses were carried out using the Macintosh™ software packages Factfinder, SuperANOVA™, and StatView 512+™ and run on a Macintosh SE™ personal computer (see Looker, Denton, & Davis, 1989; Martin, 1988; Martin, 1989; Morse, 1991 for data analysis using personal computers).

Part I: Demographic and self-rating scale data were entered in the StatView 512+ program for factor analysis and then copied to the SuperANOVA program for the MANOVAs. Factor analysis was chosen to accurately summarize the interrelationships among the 24 variables and reduce these variables to more meaningful and manageable forms. The factor analytic procedure investigated item response patterns and the internal structure of the

Self-Rating Scale for subsequent comparison of mean differences between the two groups (Hotelling's T^2 or MANOVA). This technique offered the researcher the advantage of identifying similarities between the groups along a smaller number of more general dimensions.

A measure of variable sampling adequacy (Bartlett's Test of Spericity) was conducted in order to determine if the data were suitable for factor analysis. In the actual factor analysis, the Principal Components extraction method with roots set to 75% of the variance or root curve criterion (the program selects the larger number of the two) yielded nine factors. Since this solution did not provide a clear structure of the factors, a Principal Components with Varimax transformation was selected. From this solution, it was determined that there may be small but significant correlations among the factors, and in order to accommodate this, an Oblique Solution on the Primary Pattern (Orthotran) was decided upon. The factor structure was much clearer and the results of these analysis are reported in Chapter III.

Three research questions were addressed in this portion of the study:

1. What is the pattern of item response for the total sample on the Self-Rating Scale?
2. What factors emerge on the Self-Rating Scale which demonstrate a comprehensive pattern of relationship between the items?
3. Do the LD and NLD groups rate themselves similarly on each of the factors?

Part II: As questionnaires were returned, responses to each of the questions by case number were typed into separate files in Factfinder, a Hypercard software package developed as a free-form filing system. Once the data had been entered, it appeared that the quantity of responses to each of the questions was more than had been anticipated and was too much for one study to manage. As a result, six of the original 17 questions were eliminated from the

analyses and were put aside for future research. Elimination of questionnaire items was determined by the research questions. Those items on the questionnaire that did not address the research questions directly, or were considered to be poorly worded, were set aside.*

Each of the retained questions was treated separately due to the quantity of individual responses per question. The computer program eliminated the use of file cards and was deemed more efficient to handle the large number of responses that were given for each question. The question files were created with the demographic data recorded at the top of the printout in order to easily identify the respondent's coded information.

In order to handle the coding and subsequent analysis of the data, the researcher used a variation of the methods described by Krahn (1990), Miles and Huberman (1984), and Oppenheim (1966). Krahn had utilized a similar procedure for a closed- and open-ended survey questionnaire of 168 high school dropouts by dividing the coding system into sorting and analytic variables. Miles and Huberman provided the basis for the initial coding strategies and Oppenheim had been one of the first to outline the computerized use of open-ended survey data (key punching using binary codes).

Each question file was read in its entirety to get a "feel" for how the students responded to the question as a whole. Overall emergent themes (sorting variables or first level codes) and specific responses (analytic variables or second level codes) were recorded in the margins of the printed format. Once the sorting variables were identified and defined by describing the overall range of content within the question, each file was code mapped (segments of the file

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* Those questions which were dropped from the analyses are marked with an asterisk(*) on the questionnaire (see Appendix C).

were bracketed and labelled according to the sorting variable). Appendix F lists all of the sorting and analytic codes for each question.

Sorting variables served an important function in this study as they clarified and parsimoniously outlined important issues underlying each of the questions and added significantly to the high inter-rater reliability discussed in the next chapter. Files could be called up by an identifying sorting code. These codes were kept to a minimum and no more than six per question were identified. The sorting variables were intended for use in identifying transcripts containing the discussion of a specific topic and would ultimately provide a way in which to discuss large groupings of analytic responses (see Appendix F).

Initially, the sorting codes were used in the data analysis. If any significant differences were noted between groups on the sorting codes, then analyses were conducted on the analytic codes to determine the specificity of the differences. The inter-rater reliability for the sorting codes was extremely high (see Chapter IV: Results) and the raters had very little difficulty identifying the analytic codes subsequent to identifying and agreeing with the sorting codes.

Analytic variables (more specific responses), intended to categorize different types of answers, were designed for each question and were more problematic to define than were the sorting variables. However, as noted in Chapter IV, they demonstrated high inter-rater reliability. It was important that each of these variables be carefully and consistently defined for without a clear set of coding rules, inter-rater reliability would suffer and external validity would be affected. As well, some of the questions contained similar patterns of responses and, therefore, analytic variables could cross into more than just one question.

The number of analytic codes per question varied. However, no more than 36 analytic codes (see Appendix F) were designed for each question as it was felt that other coders would not be able to handle the number of codes, nor would mutual exclusivity of each category be maintained (even 36 codes was more than the researcher would have liked). For all questions, the last three codes were "no response", "other code" and "no code."

"Other code" indicated that the answer had appeared in this question less than five times but had appeared in another question more frequently, and "no code" which indicated that an answer had been attempted but could not be interpreted by the coders or did not occur more than 5 times to warrant a separate code. These codes were added in order to account for missing data during the final analyses. However, in the final analyses, the categories "no response", "no code", and "other code" were combined in order to reduce the number of empty cells in the data.

Since the Factfinder program does not run statistical programs, each set of analytic codes by case (respondent) was printed from the Factfinder program and transformed into a StatView 512+ file for final analyses. These codes were then grouped into their sorting codes and, subsequently, sorting code analyses were conducted among the various groups. As an example, question #1 from Part II of the questionnaire has a sorting code called "motivation." This is the general term applied to a group of more specific responses called analytic codes. The analytic codes which fall under the "motivation" sorting code are: general motivation (such as caring about studies, puts in effort, goal orientation, enjoys learning, persistent), and sets education as a priority, etc.

The reliability of the analytic variables was assessed by having two persons independently recode the data using a randomly selected, computer generated list of 15 LD and 15 NLD cases. Thirty cases per question were

considered sufficient to represent the total sample in order to calculate inter-rater reliability. The two raters, a psychologist and a counsellor both familiar with similar coding procedures, examined each of the questions to see if they could identify the analytic codes described by the researcher. The coding was compared to the researcher's and discrepancies were discussed in order to clarify inconsistencies in the definitions.

At one point in the definition and coding of analytic variables, it was discovered that some of the subcategories of the variables had been separated from the original analytic variable and coded separately. This caused inconsistency in definition and, consequently, confusion between the raters among questions. Corrections had to be made to ensure consistency. None of the original analytic variables were affected since the separated variable was simply subsumed under its original definition and the inter-rater reliability was unaffected (e.g.: "likes school" may have originally been subsumed under the analytic variable "motivation" but may have been separated in another question to an analytic variable called "like." A correction was made so that "likes school" would fall under "motivation" throughout the questionnaire). The raters agreed with this procedure.

Inter-rater reliability was assessed using percentages. Percentage of agreement was calculated using the following formula:

$$\text{Percentage of agreement} = \frac{\text{number of agreed-upon codes within the sample}}{\text{Total number of codes (analytic) within the sample}}$$

The two independent raters generally demonstrated strong agreement with the researcher on each of the analytic variables across each question (see Chapter VI, Table 1). Miles and Huberman (1984) suggested that inter-rater reliability should reach 70% at the outset and as the raters gain more experience, this value should increase. The lowest reliability for a single question was 88%, and

the remainder exhibited agreements over 90%. In other words, most of the variables were coded similarly by the two coders in all eleven coded questions. This suggests a high level of inter-rater reliability. The mean of the reliability percentages for all questions for both rater 1 and rater 2 was 96%.

Once inter-rater reliability had been established and problems with definitions had been resolved, the researcher coded all other cases utilizing the definitions from the subsample of 30 that the raters had used for each question. All codes were then transferred to the StatView 512+ program for Chi-Square (χ^2) analyses to assess similarities between groups. This was a lengthy procedure even though the case numbers and demographic data were copied over from the original file set up to run the factor analysis. Each question had to be treated as a separate file as the codes varied from question to question and, subsequently, different data sets were created.

The research questions for this part of the questionnaire were:

1. What themes would be identified by the total sample for each question?
2. Do the themes form identifiable patterns of similarity along the dimensions of group (LD, NLD), gender, and type of PSI (university, community college, technical school)?

C. INTERNAL AND EXTERNAL RELIABILITY AND VALIDITY

Threats to internal reliability were reduced through: (a) the use of low incidence descriptors, that is, verbatim accounts of responses to substantiate categorical analysis, and (b) peer examination of data to see that categories and themes identified by the researcher could be identified by two impartial coders (Slavin, 1984). These techniques have been reported as ways of reducing threats to internal reliability by Field and Morse (1985) and LeCompte and Goetz (1982).

Since the sample was a predetermined select sample and external reliability is in question with these kinds of samples, external reliability was increased by a thorough description of the methods used in the analysis of the data. For each question, coding initially involved grouping responses into themes (sorting variables or first level codes) and then defining and redefining these themes more specifically into analytic variables or second level codes so that the two coders could adhere to the definitions provided for them by the researcher (see Appendix F). Themes or categories had to be "exhaustive and mutually exclusive" (Krippendorf, 1980, p. 75).

The questionnaire appeared to tap the students' perceptions of the phenomenon in question. Since the sample was a select sample and not a randomized sample focussed on a group of adults with learning disabilities and a group of adults without learning disabilities, the generalizability of results to other and/or larger groups of adult students is questionable.

D. SUMMARY

The purpose of the study, which is to add to our knowledge base of adults with learning disabilities, was described as essential for educators of adults. Particular emphasis in the study is placed on the perceptions that these adults hold about the nature of ability as defined by a self-assesment of academic abilities measure and descriptions of students with high and low grades. In order to obtain this information, a two-part questionnarie was designed by the researcher. The first part of the questionnaire was aimed at assessing the self-perceptions that the students held regarding their abilities to engage in academic endeavors. The second part of the questionnaire asked students to describe various constructs and behaviors related to the attainment of high and low grades.

Procedures for sample selection were oultined and the sample was described as a select sample dependent on accessability to students with learning disabilities. Three hundred and forty-nine questionnaires were mailed out to various postsecondary insitutions. Proportional sampling procedures were not utilized and, therefore, the students responding from each of the three types of postsecondary insitutions were not considered respresentative of that postsecondary insitution. Questionnniare development was discussed and data analysis procedures were outlined for both parts of the questionnaire. Threats to internal and external reliability and validity were reviewed.

IV. RESULTS: QUESTIONNAIRE RESPONSES AND DESCRIPTION OF THE SAMPLE

A. QUESTIONNAIRE RESPONSES

Of the 349 questionnaires sent out to contact persons at various postsecondary institutions, 209 were distributed to students who had never been diagnosed as having learning disabilities (NLD) and 140 were distributed to students who had identified themselves as having learning disabilities (LD) to one of the Student Services departments for academic assistance (usually this was either a counselling department or an office which provides services to students with disabilities). Ten of the questionnaires were distributed to LD students in audio-taped format, but only three were completed and transcribed for analysis. Students with learning disabilities were allowed the use of a scribe if they requested it.

Two hundred and twenty-six questionnaires were completed and returned (64.8%). Of these, 92 (40.7%) were from the LD group and 134 (59.3%) were from the NLD group. The proportion responding from the LD and the NLD groups did not differ significantly ($\chi^2 = .094$, $df = 1$, $p = .76$). However, the number responding from each PSI differed only in LD responses from Community Colleges with the actual number lying below the expected value (Table 1).

TABLE 1.

Number of Responses for Each Group by PSI

	NLD	LD	Total
University	58	53	111
Community College	62	25	87
Technical School	13	14	27

$\chi^2 = 8.82$, $df = 2$, $p = .01$

Although the universities and technical schools returned relatively equal LD and NLD questionnaires, Grant McEwan Community College returned significantly more NLD questionnaires than LD questionnaires.

Ninety-two of the LD group had been diagnosed and/or assessed as having learning disabilities and three of the NLD group had been assessed but not diagnosed and, consequently, were not considered to have learning disabilities. The majority (92%) of the completed questionnaires came from within the province of Alberta and the remainder from Nova Scotia.

TABLE 2.

Questionnaire Distribution Sheet

	Number Distributed		Number Completed		Number Spoiled	
	LD	NLD	LD	NLD	LD	NLD
Community Colleges						
Alberta College of Art	5	5	2	3		
Grant McEwan Community College	10	25	6	17	1	0
Keyano College	3	3	0	0		
Lakeland College	1	11	1	10		
Lethbridge Community College	4	4	4	4		
Medicine Hat Community College	2	5	2	5		
Mount Royal College	12	20	6	20		
Olds Community College	2	0	0	0		
Red Deer College	7	7	4	3	1	0
Technical Schools						
Northern Alberta Institute of Technology	2	3	1	2		
Southern Alberta Institute of Technology	33	20	13	11		
Universities						
University of Alberta	37	69	35	33		
University of Calgary	12	20	5	8		
Mount Saint Vincent University	10	17	10	17		
Totals:	**140**	**209**	**92**	**134**	**2**	**0**

Table 2 shows the return rates from each of the Postsecondary Institutions (PSIs). Some of the PSIs contacted had no method by which to identify or access LD students and were, therefore, eliminated from the list. Others, such as the Southern Alberta Institute of Technology, had an informal LD program

due to the interest of one of the counsellors and, therefore, were able to identify a number of students with learning disabilities.

The study sample was made up of students from universities (49.3%), technical schools (12%), and community colleges (38.6%) who were over the age of 18 and enrolled in a career oriented or university transfer program. Since many community colleges also had upgrading programs and a number of identified learning disabled students were in these programs, they were given the questionnaires by the contact persons. Nineteen upgrading students completed the questionnaires (4 LD and 15 NLD) and these were included in the analyses.

An overall return rate of 64.8% (65% for LD students and 64.6% for NLD students) was deemed acceptable. Yu and Cooper (1983) had looked at 497 return rates between the years of 1967 and 1981 in 23 different journals covering the disciplines of business, psychology, and sociology and recorded mean return rates of 41.6% on questionnaires that were samples of convenience. Return rates of 38.6% to 67.7% were documented for questionnaires that contained between 31 and 50 response items. The questionnaire for this study contained 24 self-rating scale items and 17 open-ended questions (i.e., 41 items). The return rate for the completed LD questionnaires does not include the two questionnaires that were spoiled and could not be used in the analyses.

B. DESCRIPTION OF THE SAMPLE

Demographic data from the information sheet were used to compare groups. An ANOVA comparing the NLD to the LD group on the variable of age (Table 3) and Chi-Square analyses on the variables of possession of a high school diploma (Table 4) and year of program (Table 5) revealed no

differences. This suggests that both groups were similar in age, level of high school education, and year of postsecondary program. Some research has suggested that adults with learning disabilities at postsecondary institutions may be older as they may have had early school failures or they may have dropped out and, therefore, have had to upgrade in order to continue (Johnson & Blalock, 1987). These results do not support this assumption.

TABLE 3.

Age (in years)

Group	Mean	SD
NLD	26.4	7.55
LD	27.0	6.37
TOTAL	26.6	7.08

$F = 0.459$, $df = 1$, $p > .05$

Obtaining a high school diploma has been reported as difficult for many LD students but this particular group appears to be as well educated as their NLD counterparts. Many PSI programs do, however, require a high school diploma and this is obviously reflected here. However, students were not asked to identify the type of high school diploma they held and, consequently, these results may not reflect the actual nature of the level of education held by each group.

TABLE 4.

Number of Students in Each Group With and Without High School Diplomas

High School	NLD		LD		Total	
Diploma	n	%	n	%	n	%
Yes	104	78.2	74	81.3	178	79.5
No	29	21.8	17	18.7	46	20.5

$\chi^2 = 0.323$, $df = 1$, $p > .05$

Students were asked to state the year of study in their postsecondary programs. Four students (1 LD and 3 NLD) stated that they were in partial years

and when the data were entered for analysis, the partial years were raised to the next highest categorical number in order to facilitate analysis. The total group mean was 2.2 years (SD = 1.19) with the mode being first year. No significant differences were found between the groups.

TABLE 5.

Year of Postsecondary Program

	NLD		LD		Total	
Year	n	%	n	%	n	%
1	50	37.3	30	34.1	80	36.0
2	49	36.6	22	25.0	71	32.0
3	11	8.2	11	12.5	22	9.9
4	23	17.1	21	23.9	44	19.8
5	1	0.8	4	4.5	5	2.3

$\chi^2 = 7.97$, $df = 4$, $p > .05$

However, differences between the two groups, evaluated by means of chi-square tests, were found on the variables of gender, full-time or part-time status, whether there were other family members who had a learning disability, and the actual family members who were learning disabled. Separate ANOVAs comparing the groups on the variables of high school and postsecondary grades also revealed differences between the groups.

A larger number of males with LD responded to the questionnaires than did males in the other group (Table 6).

TABLE 6.

Number of Male and Female Respondents

	NLD		LD		Total	
Gender	n	%	n	%	n	%
Males	26	19.6	38	41.8	64	27.6
Females	107	80.4	53	58.2	160	71.4

$\chi^2 = 13.059$, $df = 1$, $p < .05$

The ratio of males to females in the LD population is estimated to be 3:1 (Johnson & Blalock, 1987; Kronick, 1988) and, therefore, a larger number of

male respondents would be expected in this group. Sample selection bias may be reflected in the NLD group as some instructors who distributed the questionnaires may have had a predominance of females in their classes (e.g., returns from Mount Royal College for the NLD group indicated that they were all female students in a secretarial arts program which required a high school diploma).

Significant differences were also noted in the postsecondary status of the adult students (Table 7). More LD students were part-time students than were the other students. It may be that postsecondary LD students find the demands of academic life more challenging and need more time to spend on course work. As well, it is not unusual for these students to be counselled to reduce their course loads if they have had difficulties in the past or are currently experiencing problems. The LD group in this study had identified themselves to staff so they were seeking some kind of assistance. Although they did not differ from the NLD group in year of their program and age, more were part-time students who sought assistance for academic difficulties.

TABLE 7.

Postsecondary Status: Full-Time or Part-Time

	NLD		LD		Total	
PSI Status	n	%	n	%	n	%
Full-Time	124	94.7	76	83.5	200	90.1
Part-Time	7	5.3	15	16.5	22	9.9

$\chi^2 = 7.464$, $df = 1$, $p < .05$

Although the groups did not differ in the numbers that had obtained a high school diploma, they did differ on their high school grades. Of the 176 students that reported their high school grades (107 NLD and 69 LD), the LD students reported significantly lower high school grades (Table 8). Grades were

converted to a nine point scale using the Grading System Guide from the University of Alberta (October, 1989, with 50% required to pass) because the students reported high school grades in letter grades, percentages, or grades on a nine point scale.

TABLE 8.

Mean High School Grades

Group	Mean	SD
NLD	6.215	1.576
LD	5.696	0.912
TOTAL	6.011	1.095

$F = 9.91$, $df = 1$, $p < .05$*

Obtaining lower grades did not prevent this group from going on to postsecondary education although they appear to be achieving at lower levels here as well (see Table 9; grades were converted to a nine point scale using the University Grading System Guide). Only 147 students (88 NLD and 59 LD) reported postsecondary grades, so these figures may not be an accurate reflection of perceived achievement levels. As well, a number of students were in their first year and may not have received any grades before the date that the questionnaire was distributed.

TABLE 9.

Mean Postsecondary Grades

Group	Mean	*SD*
NLD	6.432	1.248
LD	5.814	1.025
TOTAL	6.184	1.199

$F = 9.96$, $df = 1$, $p < .05$*

When students were asked if there were other family members who had a learning disability, the LD group reported significantly more members with a learning disability (Table 10). This would concur with the assumption that

learning disabilities may have a genetic component and, therefore, tends to run in families. However, this may not be the only explanation as the diagnosis of a learning disability in adults is sometimes dependent upon its prevalence in other family members.

TABLE 10.

Is There Another Family Member With a Learning Disability?

	NLD		LD		Total	
	n	%	n	%	n	%
Yes	26	19.6	34	37.8	60	26.9
No	107	80.4	56	62.2	163	73.1

$\chi^2 = 9.07$, $df = 1$, $p < .05$*

Of the group (223) responding to the above question, 26.9% reported that someone in the family had a learning disability. Estimates of learning disabilities within the general population run between 3% (Algozzine & Ysseldyke, 1988) to 15% (Report of the Senate Task Force, 1979) with these figures supposedly on the rise given the necessity of a good education to obtain reasonable employment. The group here is oriented toward higher education and this may have been reflected within the family so that learning problems were thoroughly checked out. Consequently, the reported numbers of learning disabilities in the total group may be higher than in the general population. An alternative explanation may be that learning disabilities are being over-diagnosed among problem learners. The literature has implicated this as a potential problem (Algozzine & Ysseldyke, 1988; McGrady, 1987; Vogel, 1987).

When students were asked to identify the family members with learning disabilities, 59 responded and the groups differed in their identification of the members. The LD group differed significantly from the other group in that the former reported more of their parents as having learning disabilities (Table 11). However, the NLD group did report more brothers with learning disabilities than

did the LD group. In both groups, the numbers in bold on Table 11 are above the expected values within the cells. The variable "relative" may not accurately reflect a specific family member as some of the respondents circled it and then stated that they circled this response to identify their own children. The data do not indicate whether the family members were actually assessed and formally diagnosed or whether the students responding to the questionnaire simply perceived them to have a learning disability.

TABLE 11.

Which Family Member?

	NLD		LD		Total	
Member	n	%	n	%	n	%
Mother	0	0.0	**6**	18.2	6	10.1
Father	2	7.7	**7**	21.2	9	15.3
Sister	5	19.2	4	12.1	9	15.3
Brother	**12**	46.2	7	21.2	19	32.2
Relative	7	26.9	9	27.3	16	27.1

$\chi^2 = 9.76$, $df = 4$, $p < .05$

One of the questionnaire items from the Information Form For Students was discarded as the responses were difficult to interpret for analysis purposes. The question that was not coded asked students to identify their program of study. Programs, particularly at technical schools and community colleges, were identified by so many different names that it was difficult, in some cases, to determine the specific program from the calendars of the institution. However, students who were in upgrading programs did identify their programs correctly as three of the contact persons mailed back the completed questionnaires in separate packages identified as responses from upgrading programs and answers on the student information sheets confirmed this classification.

C. DISCUSSION

Some strength for comparison of the two groups lies in their similarities. They were similar in age, number possessing a high school diploma, and year of PSI program. Although more LD students reported part-time status, they were still similar to the NLD group in year of program.

It is surprising that 26.9% of the students reported family members with learning disabilities (37.8% from LD students and 19.6% from NLD students). Both figures are beyond estimated percentages in the general population. There may be a few reasons for this over-estimation: lack of clarity among assessment personnel as to what constitutes a learning disability as opposed to learning difficulties or underachievement leading to over-diagnosis, and a misconception on the part of the students as to what a learning disability is. The students may be interpreting a poor quality of academic performance in the areas of reading, writing and/or mathematics by other family members as a learning disability without any formal assessments having been completed.

Since the researcher did not do the assessments for the LD students, there are only two things that can be regarded as certain about this group: (1) they perceived themselves to be performing below what they would have liked or what program requirements demanded [i.e., they reported significantly lower PSI grades], and (2) they sought some form of assistance for difficulties whether they were related to personal issues or learning issues.

The students without learning disabilities were a group in which selection of the PSI was dependent on the identification of students with learning disabilities within that institution. Consequently, the selection of the postsecondary institution was not random. All the instructors who distributed the questionnaires to their classes were either known to the researcher or one of the counsellors who volunteered to help with the study. Some sample selection

bias may be reflected in the returns because one of the groups that returned the questionnaires was completely female and there were an equal number of questionnaires distributed and returned.

D. SUMMARY

This section of the results covered the questionnaire response rate, a discussion of the response rate, a description of the sample and a discussion of this description.

Of the 226 students who returned the questionnaire, 92 were from students with learning disabilities and 134 were from students who had not been diagnosed as having learning disabilities or chose not to disclose this information. One hundred and eleven of the students were university students, 87 were community college students, and 27 were from technical schools. Of the 87 community college students, 19 were in upgrading programs throughout the province of Alberta. The overall return rate was 64.8%.

The two groups, the LD and the NLD, were similar in age, the number who held high school diplomas, and year of postsecondary program. Differences between the two groups were noted on the variables of gender, full- or part-time status, high school and post-secondary grades, other family members with a learning disability, and the actual family members who were reported to have learning disabilities. There were more females in the NLD group who responded to the questionnaire and more students with LD were registered as part-time students. Students with learning disabilities reported lower grades in high school and at postsecondary institutions than did students who were not considered to have learning disabilities.

Students in the LD group reported more family members with learning disabilities and identified more of these members as mothers and fathers than

the NLD group. The NLD group reported significantly more brothers as having learning disabilities. Approximately 27% of the number of students responding to the questionnaire indicated there were other family members with a learning disability, which is a higher reporting rate than was expected given previous research.

As a result of the sample selection procedures and the biases in the sample, these results are applicable to this study only.

V. RESULTS: SELF-RATING SCALE ANALYSIS - PART I

A. ITEM RESPONSE AND FACTOR ANALYSES OF THE 24 ITEM SELF-RATING SCALE

Part I: The Self-Rating Scale was developed to assess students' perceptions of academic ability. Since intelligence is closely associated with academic performance (Wagner & Sternberg, 1984), the scale was developed from a list of frequently occurring attributes in definitions of intelligence (see Chapter 3, Table 2). Those attributes which were cited as occurring most often and which could be suitably worded for rating on a Likert-type scale were selected for inclusion.

Research Question 1: What is the pattern of item responses for the total sample on the Self-Rating Scale?

Subsequent to the questionnaire return, student responses were analyzed using the StatView 512+™ statistical package for the Macintosh™. The analyses were focussed on determining the pattern of student responses to the scale items and the differences between groups on identified factors. The responses to individual items generally approached normality. Table 1 lists the response patterns for each of the items, including means, medians, and indices of skewness.

An overview of Table 1 indicates that four of the items (items 6, 7, 15, and 24) have a markedly negative skew. These questions deal with motivation, persistence, ease of learning, and flexibility in academic settings and students who are at postsecondary levels have usually been persistent and have wanted to further their learning for various reasons. Therefore, the positive responses

on these items do make sense. Items which reflect a low negative or low positive skew (i.e., those items between -0.4 and +0.1) are not considered to be skewed to a marked degree.

Table 1.

Response Patterns for Self-Rating Scale Items: Percent Selecting Each Response Category, Means, Medians and Skewness Indices

Item	Percent Selecting Each Response Category							Mean	Mdn	Skew
	1	2	3	4	5	6	7			
1	0.9	9.3	19.9	22.1	18.6	23.0	6.2	4.4	4	-0.1
2	0.4	4.0	15.1	25.8	25.3	23.5	5.8	4.6	5	-0.2
3	0.9	9.8	23.1	35.1	21.8	9.3	0.0	4.9	5	-0.1
4	0.9	6.7	16.4	26.2	22.7	19.5	7.5	4.5	4	-0.1
5	3.4	8.4	11.9	16.4	27.9	19.9	11.9	4.6	5	-0.4
6	0.4	2.2	6.6	15.5	28.3	25.7	21.2	5.3	5	-0.6
7	0.9	0.0	4.5	14.3	23.7	35.7	20.9	5.5	6	-0.8
8	0.4	1.3	9.3	18.7	27.1	29.3	13.8	5.1	5	-0.4
9	0.9	6.2	16.9	26.3	23.2	14.7	11.6	4.5	4	+0.0
10	1.3	8.0	18.2	29.3	24.9	16.0	2.2	4.2	4	-0.1
11	5.7	11.5	18.6	28.8	14.2	17.3	3.9	4.0	4	-0.1
12	0.4	3.5	9.8	25.8	26.2	24.0	10.2	4.9	5	-0.3
13	0.4	2.7	11.6	29.9	29.0	18.3	8.0	4.7	5	-0.1
14	3.5	10.2	22.2	29.8	22.7	11.5	0.0	4.9	5	-0.2
15	0.9	3.1	9.4	19.2	32.6	24.1	10.7	4.9	5	-0.5
16	3.1	7.5	16.4	24.4	19.5	20.4	8.4	4.4	4	-0.2
17	0.4	1.3	6.7	24.0	28.0	27.5	12.0	5.1	5	-0.3
18	3.6	7.2	16.1	20.6	17.9	23.7	17.8	4.6	5	-0.3
19	6.2	7.1	17.7	23.9	20.3	15.9	8.8	4.3	4	-0.2
20	9.0	11.3	17.2	34.8	13.1	11.7	2.7	3.8	4	-0.1
21	0.4	1.3	10.6	25.2	19.9	22.1	20.4	5.1	5	-0.2
22	3.1	7.1	11.1	27.5	16.4	21.3	13.3	4.6	5	-0.3
23	1.3	3.1	31.8	36.3	19.5	7.9	0.0	4.9	5	+0.1
24	0.4	4.9	5.3	17.7	26.5	32.7	12.4	5.1	5	-0.7

Table 2 presents Pearson Product-Moment correlations between individual scale items as well as squared multiple correlations (SMRs). Examination of the table reveals that inter-item correlations range from -.41 to .67 with a large majority of the intercorrelations significant at the .05 level of two-tailed probability. That is, most items in the scale are significantly interrelated.

TABLE 2.

Self-Rating Scale Item Intercorrelations and Squared Multiple R in the Diagonal

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	**.64**	.67	.42	.43	.54	.33	.28	.45	.19	.66	.54	.45	.33	.32	.38	.36	.30	.41	.48	.26	-.18	-.12	.29	.27
2		**.63**	.51	.43	.53	.40	.33	.48	.24	.65	.45	.44	.29	.32	.30	.44	.32	.39	.46	.16	-.11	-.11	.36	.32
3			**.60**	.24	.30	.29	.16	.26	.17	.52	.32	.58	.24	.28	.23	.20	.23	.21	.43	.10	.03	.07	.65	.28
4				**.56**	.37	.37	.39	.27	.36	.37	.27	.21	.34	.43	.28	.69	.22	.26	.22	.21	.02	-.19	.14	.21
5					**.53**	.46	.30	.49	.22	.51	.39	.26	.31	.33	.26	.42	.30	.32	.36	.33	-.05	-.15	.19	.29
6						**.52**	.57	.27	.36	.33	.14	.21	.30	.44	.31	.41	.29	.20	.14	.05	.20	-.07	.20	.16
7							**.46**	.21	.42	.24	.04	.17	.25	.37	.22	.47	.23	.15	.16	.10	.22	-.10	.18	.16
8								**.42**	.18	.42	.40	.33	.27	.30	.27	.22	.26	.31	.43	.19	-.14	.01	.22	.33
9									**.37**	.22	.09	.11	.26	.38	.26	.33	.19	.10	.15	.07	.17	-.30	.20	.18
10										**.70**	.63	.50	.27	.32	.26	.34	.33	.41	.58	.20	-.17	.04	.44	.23
11											**.63**	.32	.16	.18	.41	.20	.20	.46	.52	.20	-.41	-.05	.26	.29
12												**.48**	.27	.24	.20	.26	.36	.26	.35	.07	-.04	.03	.52	.26
13													**.53**	.65	.34	.36	.38	.25	.24	-.05	.14	-.11	.26	.31
14														**.56**	.35	.43	.27	.19	.30	.07	.11	-.08	.25	.20
15															**.47**	.27	.32	.25	.19	.10	-.02	-.09	.19	.51
16																**.59**	.26	.26	.20	.17	.08	-.24	.14	.19
17																	**.32**	.32	.12	.03	.01	-.03	.22	.37
18																		**.34**	.36	.07	-.11	-.02	.23	.29
19																			**.48**	.19	-.19	-.04	.37	.19
20																				**.21**	-.05	-.07	.08	.16
21																					**.33**	.07	.13	.02
22																						**.24**	.11	.00
23																							**.53**	.31
24																								**.41**

Note: All correlations greater than 0.15 are significant at the .05 level of confidence.

Since items 20 and 22 had the lowest inter-correlations on the scale (and SMRs of .21 and .24, respectively), it was decided to drop these two items from further analysis.

The high number of significant intercorrelations suggests that there is some underlying unitary factor to the response pattern of subjects to the scale. Because the items on the scale were selected from a list of attributes outlined by Sternberg and Detterman (1986), the underlying unitary factor is thought to be a reflection of variables that contribute to perceptions of ability as they relate to behaviors indicative of successful performance in academic settings.

Research Question 2: What factors emerge on the Self-Rating Scale which demonstrate a comprehensive pattern of relationship between items?

Scale items were factor analyzed in order to reduce the number of items in a more parsimonious way. Measures of variable sampling adequacy indicate that the total matrix sampling adequacy was .881 (Bartlett's Test of Sphericity, $df = 252$, $\chi^2 = 2237.40$, $p < .01$).

Responses to the 22-item measure were initially factor analyzed using the principal components method (Hotelling, 1933) with varimax rotation (see Gorusch, 1983). Using the conventional extraction criterion of eigenvalues greater than one (Kaiser, 1965), the analysis indicated the presence of four factors. The rotated four-factor principal components solution for these data is presented in Table 3. As can be seen from Table 3, the four-factor solution has a first factor that accounts for 18.4% of the variance, a second factor that accounts for 17.3% of the variance, a third factor accounting for 11.4%, and a fourth factor that contributes 10.5% to the total variance.

On Factor I, five scale items demonstrate acceptable factor loadings above .35, three show secondary loadings on Factors II or III, and one item

loads on both Factors II and III. On Factor II, five scale items have factor loadings above .35 and one item loads secondarily at .35 on Factor IV. Factor III is comprised of three items and none of these have secondary loadings. Three of four items load primarily on Factor IV and one of the items has a secondary loading on Factor II.

TABLE 3.

Four-Factor Solution for Items on the Self-Rating Scale: Principal Components with Varimax Rotation

	FACTORS				
	I	II	III	IV	Communalities
Ability to Learn					
1	**.69**	.30	.25	.18	.65
2	**.61**	**.39**	**.35**	.12	.66
5	**.54**	**.42**	.12	.17	.51
8	**.55**	.20	.16	.26	.43
10	**.68**	.25	**.46**	.08	.74
11	**.79**	-.03	.14	.23	.70
18	**.51**	.08	.10	.33	.39
19	**.61**	.11	**.40**	.04	.55
21	**-.64**	.34	.24	.08	.59
Organization					
4	.33	**.68**	-.05	.13	.59
6	.15	**.69**	.19	.10	.55
7	.04	**.76**	.10	.03	.59
9	-.01	**.59**	.13	.17	.40
14	.11	**.61**	.16	**.35**	.53
16	.26	**.74**	-.02	.10	.62
Ability (IQ)					
3	.23	.11	**.79**	.13	.71
12	.32	.14	**.67**	.14	.59
23	.09	.09	**.84**	.19	.75
Adaptation					
13	.07	**.42**	.18	**.54**	.51
15	.21	.19	-.01	**.74**	.63
17	.18	.21	.21	**.54**	.41
24	.14	.02	.16	**.77**	.65
SS	4.05	3.8	2.5	2.3	
Percent Variance	18.4	17.3	11.4	10.5	

In an attempt to improve simple structure, an oblique solution was tried (Orthotran). This allowed for minor correlations between the factors (Table 4). The results of this reanalysis are presented in Table 5 and this analysis shows a clearer simple structure with only four items in Factor I displaying secondary

loadings of .35 and above. Factors II, III, and IV are also clearer in that there are no secondary loadings. As well, the items within each factor remained the same as with the former solution.

TABLE 4.

Primary Intercorrelations Between Factors

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	1			
Factor 2	.39	1		
Factor 3	.37	.32	1	
Factor 4	.39	.44	.39	1

According to Gorusch (1983), the criteria for evaluating the appropriate solution should be based on Thurstone's propositions for simple structure which are as follows:

(1) Each variable should have at least one zero loading (zero loadings are considered to lie between ±.10, approximately, to allow for some randomness).

(2) For each pair of factors, there should be several variables that have loadings of zero on one factor, but not on another.

(3) With each pair of factors, a small number of variables should exist with nonzero loadings on both factors.

(4) A large proportion of the variables should have zero loadings on each pair of factors, especially where more than four factors are extracted.

(5) Each factor requires a set of linearly independent variables whose factor loadings are zero.

The oblique solution satisfies four of the five criteria for determining simple structure and evaluating a solution better than does the orthogonal solution (see Table 5).

TABLE 5.

Four-Factor Solution for Items on the Self-Rating Scale: Oblique Solution on the Primary Pattern - Orthotran

	FACTORS				
	I	II	III	IV	Communalities
Ability to Learn					
1	**.64**	.19	.14	.03	.65
2	**.53**	.30	.26	-.06	.66
5	**.47**	**.36**	.00	.03	.51
8	**.51**	.08	.05	.17	.43
10	**.62**	.14	**.37**	-.11	.74
11	**.83**	-.19	.01	.15	.70
18	**.49**	-.06	-.02	.28	.39
19	**.58**	.00	**.35**	-.12	.55
21	**-.83**	**.42**	.30	.09	.59
Organization					
4	.22	**.71**	-.18	-.01	.59
6	-.02	**.72**	.12	-.04	.55
7	.12	**.84**	.04	.11	.59
9	-.18	**.62**	.07	.08	.40
14	-.08	**.58**	.05	.27	.53
16	.14	**.78**	-.14	-.04	.62
Ability (IQ)					
3	.08	-.02	**.82**	-.01	.71
12	.19	.02	**.67**	.00	.59
23	-.09	-.04	**.88**	.08	.75
Adaptation					
13	-.12	.32	.06	**.53**	.51
15	.08	.02	-.18	**.81**	.63
17	.04	.07	.10	**.53**	.41
24	.01	-.18	.03	**.85**	.65

Factor I is defined by scale items which relate to abilities to learn in an academic situation. The items are reflective of: self-expressions of capability or efficiency in performing academic work, such as self-confidence; personal satisfaction with one's work; degree of perceived control; perceptions of overall ability to do the work; the ability to learn difficult concepts; memory capacity; the ability to express oneself; and the capacity to work hard. Table 5 indicates that items 5 and 21 load secondarily on Factor II and items 10 and 19 load secondarily on Factor III. Unlike the orthogonal solution, there are no tertiary loadings of items within this factor. Factor I is called the "Ability to Learn" factor.

Factor II, called the "Organization" factor, is a factor related to the varieties of organizational tasks that a student can bring to bear in an academic situation which will assist in maximizing performance. It is organizational and situational in that it refers to items related to planning, motivation (intrinsic), time management, persistence, self-knowledge regarding learning strategies, and organizational ability with academic work and material. All six items displayed clear loadings on this factor.

Factor III is related to IQ or intellectual ability and is distinguishable from Factor I in that the items refer to beliefs about intellectual ability and degree of factual knowledge. It is subsequently called the "Ability (IQ)" factor. There are only three items and these clearly load on this factor. The last factor, Factor IV, is made up of four items which describe the nature of adaptation to new or novel situations in and beyond the academic learning situation: flexibility in thinking, ability to apply learning beyond the classroom, ease of learning, and awareness of different ways to study. All items loaded primarily on this factor and it is labelled the "Adaptation" factor.

Research Question 3: Do the LD and the NLD groups rate themselves similarly on each of the factors?

Once the appropriate factor solution was determined, the factor weights for the solution were multiplied by the scores of each subject for each item grouped by factor. Subsequently, the mean weights of the factor scores were calculated. This was necessary in order to use a MANOVA procedure to test the assumption of equality between the groups across the four factors. Table 6 shows the factor weights used for the calculations.

TABLE 6.

Factor Score Weights for the Oblique Transformation - Orthotran

Variables	Factors 1	2	3	4
1	.203	.012	-.034	-.068
2	.147	.071	.052	-.148
3	-.119	-.084	.444	-.087
4	.071	.271	-.180	-.095
5	.155	.102	-.098	-.066
6	-.072	.271	.022	-.127
7	-.095	.345	-.006	-.174
8	.157	-.039	-.072	.050
9	-.133	.224	.006	-.018
10	.176	.002	.129	-.180
11	.310	-.156	-.115	.048
12	-.049	-.067	.341	-.082
13	-.153	.014	-.042	.308
14	-.116	.164	-.038	.103
15	-.054	-.146	-.215	.532
16	.031	.308	-.148	-.121
17	-.084	-.094	-.022	.324
18	.157	-.110	-.111	.150
19	.177	.043	.127	-.160
21	-.417	.165	.241	.048
23	-.202	-.106	.490	-.022
24	-.113	-.249	-.078	.575

Two multivariate analyses of variance (MANOVAs) on the four-factor oblique solution using the mean weighted factors were conducted. Two MANOVAs were run since there were too many rows of missing data when all five classification variables (group, gender, PSI, high school grade category, and PSI grade category) were analyzed simultaneously. The first MANOVA accessed 223 rows of data with three classification variables (group, gender, and PSI). Only three rows were missing data for these variables. The second MANOVA excluded 110 rows from the calculations because of missing data (a large number of grades were missing). So only two classification variables were included in the second MANOVA: high school grade category and PSI grade category. It was felt by the researcher that more valid comparisons would occur as a result of two separate analyses.

The subjects were categorized by group as LD or NLD and by gender (male or female). The category called PSI was originally five categories but was reduced to three as two of the categories had too little data to conduct a proper analysis. The category "unclassified" was subsumed under "university" and the category "upgrading" was subsumed under "community college." Grades had previously been converted to stanines and were grouped as low, medium, and high with low = 1,2 or 3, medium = 4, 5 or 6, and high = 7, 8 or 9. Since too little data appeared in the "low" category, frequency distributions were utilized to determine more appropriate categories. The grade categories and frequencies are indicated in Table 7.

Table 7.

Grade Categories

HS Grade Category	1 - 5 = Low	N = 59	33.5 %
	6 = Medium	N = 62	35.2%
	7 - 9 = High	N = 55	31.3%
PSI Grade Category	1 - 5 = Low	N = 43	29.3%
	6 = Medium	N = 48	32.3%
	7 - 9 = High	N = 56	38.1%

The first MANOVA (Table 8) examined the main effects of three classification variables, group (LD, NLD), gender (F, M), and PSI (university, community college, technical school) with the four factor scores as the dependent variable. The MANOVA also included tests on three two-way interaction effects (group x gender, group x PSI, gender x PSI) and one three-way interaction (group x gender x PSI). The second MANOVA (Table 9) examined the main effects of two classification variables: high school grade category (low, medium, high), and PSI grade category (low, medium, high) on the four sets of factor scores. Also included was one test on a two-way interaction effect (high school grade category x PSI grade category).

TABLE 8.

Multivariate Analysis of Variance on the Four Sets of Factor Scores by Group, Gender and PSI

Source of Variance	Wilks' Lambda	Approx. *F* - Ratio	Numerator *df*	Denom. *df*	*P* Value
MAIN EFFECTS:					
Group	.889	6.510	4.00	208.00	.0001*
Gender	.944	3.064	4.00	208.00	.0176*
Postsecondary Institution	.961	1.032	8.00	416.00	.4112
TWO-WAY INTERACTION EFFECTS:					
Group x Gender	.969	1.646	4.00	208.00	.1639
Group x PSI	.984	.433	8.00	416.00	.9014
Gender x PSI	.958	1.123	8.00	416.00	.3461
THREE-WAY INTERACTION EFFECTS:					
Group x Gender x PSI	.960	1.066	8.00	416.00	.3862

*Significant at or above the 0.05 level of confidence.

TABLE 9.

Multivariate Analysis of Variance on the Four Sets of Factor Scores by High School Grade Category and PSI Grade Category

Source of Variance	Wilks' Lambda	Approx. *F* - Ratio	Numerator *df*	Denom. *df*	*P* Value
MAIN EFFECTS:					
High School Grade Category	.914	1.195	8.00	208.00	.3031
PSI Grade Category	.728	4.466	8.00	208.00	.0001*
TWO-WAY INTERACTION EFFECTS:					
HS Gr Cat x PSI Gr Cat	.860	1.010	16.00	318.36	.4455

*Significant at or above the 0.05 level of confidence.

An overview of Tables 8 and 9 reveals that three multivariate main effects (group, gender, and PSI grade category) were statistically significant at the 0.05 level of confidence when all four sets of factor scores were considered simultaneously. None of the second-order or third-order interactions reached significance. All of the main effects tests were based on the Wilkes' Lambda statistic.

Table 10 lists the combined means of the four weighted factor scores for the main effects results from both MANOVAs.

TABLE 10.

Factor Score Means Table for Main Effects Results - Group, Gender and PSI Grade Category

Factor	Group (N=223)		Gender (N=223)		PSI Grade Category (N=116)		
	NLD	LD	M	F	L	M	H
1	.566	.385	.492	.492	.351	.507	.614
2	1.298	1.287	1.274	1.301	1.230	1.261	1.412
3	2.080	2.111	2.243	2.032	2.033	2.034	2.141
4	2.205	2.113	2.180	2.163	2.150	2.182	2.320

Each of the three significant main effects was followed by one-way ANOVA on the criterion variable by individual classification variable to assist in identifying which mean factor scores differed from each other. Individual *F* - tests were conducted on each of the factor score means by group, gender, and PSI grade category. Table 11 presents the results of the three univariate *F* - tests that reached statistical significance.

TABLE 11.

Significant Univariate Tests on Relevant Weighted Mean Factors by Group, PSI Grade Category and Gender - Type III Sums of Squares Table

FACTOR I - ABILITY TO LEARN

Source	*df*	SS	MS	*F* - Ratio	*P* - Value
Group	1	.718	.718	19.047	.0001*
LD Group: M = .385, *SD* = .182; NLD Group: M = .566, *SD* = .202					
PSI Gr Cat	2	.834	.417	13.568	.001*
Low: M =.351, *SD* =.173; Med: M =.507, *SD* =.158; High: M =.614, *SD* =.197					

FACTOR II - ORGANIZATION

Source	*df*	SS	MS	*F* - Ratio	*P* - Value
PSI Gr Cat	2	.823	.411	6.839	.0016*
Low: M =1.23, *SD* =.271; Med: M =1.26, *SD* =.223; High: M =1.412, *SD* =.25					

FACTOR III - ABILITY (IQ)

Source	*df*	SS	MS	*F* - Ratio	*P* -Value
Gender	1	.962	.962	5.942	.0156*
Female: M = 2.032, *SD* = .409; Male: M = 2.243, *SD* = .386					

*Significant at or above the 0.05 level of confidence.

The significant main effect for group on Factor I indicates that there was a difference in the mean self-ratings between the LD and NLD groups on their perceptions of their abilities to learn. However, the two groups did not differ significantly on the remaining three factors (organization, ability [IQ], adaptation) which is interesting in that it has been documented in the literature that LD students generally feel inadequate in academic settings (see Chapter 2). Another main effect on Factor I occurred within the PSI grade category.

There were distinct and significant differences when groups (LD, NLD) on Factor I (ability to learn) were evaluated using Scheffé post hoc comparisons. The criterion alpha was set at the 0.05 level since the Scheffé method is quite conservative. When PSI grade categories (low vs medium, medium vs high, low vs high) were compared using the Scheffé on the same factor, all three of the category comparisons were significantly different.

The one main effect on Factor II, the organization factor, indicates that there were differences among means of the three PSI grade categories. Scheffé post hoc comparisons indicated that the differences occurred in comparing the low vs high and medium vs high PSI grade categories. In other words, students in the low PSI grade category rated themselves significantly lower on the organizational factor than did students in the high PSI grade category. As well, students in the medium PSI grade category rated themselves significantly lower than students in the high PSI grade category. When the low vs medium grade category was compared on Factor II, no statistical differences were found between the categories ($p = .87$) indicating that students in the low and medium PSI grade categories rated themselves similarly on the organizational factor.

On Factor III, the ability (IQ) factor, a statistically significant single main effect was revealed on the gender variable. A Scheffé test confirmed this result indicating that males tended to rate their intellectual ability higher than did the

females in the study. Research has previously confirmed this observation as females and males tend to differ in their perceptions of their IQs and academic abilities once the junior and/or senior high school levels are reached (see Chapter 2; also see Jagacinski & Nicholls, 1987; Rosenholtz & Simpson, 1984).

B. DISCUSSION

Three significant main effects were found on three classification variables: group, gender, and PSI grade category. On Factor I, the ability to learn factor, LD and NLD students differed in their ratings. Previous studies (Chapman & Boersma, 1979, 1991; Heyman, 1990; Saracoglu, Minden, & Wilchesky, 1989) have indicated that LD students have less confidence in their abilities than do other students. These results confirm previous research results. As well, students in the three PSI grade categories (low, medium, high) differed from each other when comparisons of all possible combinations were conducted. This may be reflective of the feedback students have received about their grades, either recently or in the past. Such feedback is likely to manifest itself as perceived ability to learn.

On Factor II, the organization factor, students in the low versus high and medium versus high PSI grade categories rated themselves significantly differently. Students in both the low and the medium grade category rated themselves lower than those students in the high grade category. It is interesting to note that these two groups do rate themselves as having different levels of organizational abilities in comparison to students with higher grades, although the medium and low grade category students showed no differences between each other. This may be attributable to the single grade level in the medium category. On Factor III, the ability (IQ) factor, males and females rated

themselves differently. Males tended to rate themselves higher. As was previously mentioned, this has also been borne out by previous research.

No differences were identified on Factors II, III and IV between the groups (LD and NLD). This was rather surprising as the researcher did expect differences across all four factors. However, there is no research that indicates that these kinds of differences should or should not exist. Little has been done looking at perceptions of organizational ability or adaptation. Most of the research mentions these constructs as relevant to student performance but does not go further in investigation. As previously noted, differences between PSI grade categories on Factor II and gender on Factor III were evident. No differences were found on any of the classification variables for Factor IV.

C. SUMMARY

On Part I of the Questionnaire, Self-Rating Scale analysis suggested that the scale had some underlying factor which accounted for the large number of significant correlations between the items. Factor analysis confirmed the presence of four factors: (1) ability to learn, (2) organization, (3) ability [IQ], and (4) adaptation. In comparing the ratings on each of the factors, a significant main effect was identified on the three classification variables: group (LD, NLD), gender (M,F), and PSI grade categories (low, medium, high). Further analyses identified differences on the mean factor score weights for group and PSI grade categories on Factor I, the ability to learn factor. Differences were also noted in the PSI grade category classification variable on Factor II, the organization factor. On Factor III, the ability (IQ) factor, a significant main effect was found on the gender variable. None of the two- or three-way interactions approached significance.

VI. RESULTS: ANALYSIS OF THE OPEN-ENDED QUESTIONNAIRE - PART II

A. ANALYSIS OF RESPONSES ON THE OPEN-ENDED QUESTIONNAIRE

As was mentioned in Chapter 3, six of the questions were discarded from the analyses of the open-ended questionnaire (numbers 7, 10, 12, 13, 16, and 17). A total of 11 questions were coded and the results are presented in the following section. Two research questions were addressed in this part of the study:

1. What themes would be identified by the total sample for each question?
2. Do the themes form identifiable patterns of similarity along the dimensions of group (LD, NLD), gender, and type of PSI (university, community college, technical school)?

Research Question 1: What themes would be identified by the total sample for each question?

(a) Reliability of the Analysis

In order to determine whether two independent raters could identify the same themes as the researcher, a sample of 30 cases was randomly selected (15 LD and 15 NLD) from the first question and then each of these same cases was re-examined for subsequent questions. Sorting codes or categories were discussed with each of the raters and despite the limited number of cases, there were no disagreements regarding these codes. The discussions led to a refinement and a clearer definition of each of the sorting codes. The method for setting up the codes and the procedures for coding the data was discussed in

Chapter III. After the sample coding, a percentage of agreement between the researcher and each of the two raters was determined. The results of the agreements for each question are presented in Table 1. As can be seen from Table 1, the agreement between the researcher and the two raters on the analytic codes for each question was high. The strength of the agreements appear to give credence to the reliability of the method and to some extent, of the validity of the themes which emerged from the data. After verifying the coding procedures and making corrections as a result of the suggestions offered by the raters, the remainder of the responses were coded and analyzed.

TABLE 1.

Inter-Rater Reliability in Percentages by Question

Question	Number of Analytic codes	Rater #1	Rater #2
1	175	99.43	98.85
2	156	94.87	96.79
3	51	96.80	95.79
4	94	94.68	94.68
5	91	97.80	100.00
6	84	92.86	98.80
8	121	98.35	98.35
9	104	93.27	93.27
11	77	93.51	88.31
14	84	96.43	96.43
15	68	95.59	97.06
Mean	100	95.78	96.21
Grand Mean for Inter-rater Reliability:			96.0%

(b) Emergent Themes for Research Question 1

Most students responded to the questions by listing items. Each question was read in its entirety and reread to get a sense or a feel for the data. Codes were established, first, for overall categories (i.e., sorting codes) and then for more specific responses (i.e., analytic codes). A minimum of five similar responses among the 226 cases were required before an analytic code was established. The researcher did not attempt to pair or group responses to

determine specific patterns, except in two cases. The grouping of responses into patterns was considered beyond the scope of the thesis. As well, since students listed items, patterns were frequently difficult to determine. Because of the listing of items, individual examples of responses in the following section are part of a list, and so may have lost some of the contextual implications that the complete list would have provided. However, single responses, rather than complete response lists for individual students were chosen for reasons of parsimony.

In discussing the themes that emerged for each question, the terms "major" and "minor" will used in reference to both the sorting codes (categories) and analytic codes (specific responses). The terms refer to the frequency of the responses for a particular code. If at least 30% of the students (i.e., 68 of 226 students) responding to the questionnaire indicated a particular sorting code in their responses, this was considered to be a major category code. Major analytic codes were classified as such when 30% of the total number of students responded to that code. A similar procedure for distinguishing between major and minor codes was used by Vargo (1983) in a phenomenological study called *Adaptation to Disability by the Wives of Spinal Cord Injured Males.*

The analytic code "no response" included no response at all, responses that were insufficient in number to qualify for a separate analytic code, and responses that were not interpretable by the reader. In discussing the themes for each of the questions, the "no response" category was dropped form the discussion as it was intended to account for missing data or data that did not fit any of the established codes for the particular question under discussion. This analytic code will be used in the discussion related to Research Question 2.

Table 2 summarizes, by question, the number of responses and the categories that emerged from the data.

TABLE 2.

Summary Table of Responses and Categories for Each Question

Question Number	MAJOR CATEGORIES			MINOR CATEGORIES		
	No. of Students Who Responded	No. of Responses	Name of Category	No. of Students Who Responded	No. of Responses	Name of Category
1	79	119	1. Influence of background			
	149	421	2. Cultivating institutional interrelationships			
	128	244	3. Motivation			
	145	383	4. Personal qualities			
	106	155	5. Quality of life and work			
		Total=1322				
2	159	369	1. Failure to cultivate institutional interrelationships	45	55	1. Influence of background
	119	207	2. Lack of motivation	52	70	2. Lack of quality of life and work
	132	292	3. Personal qualities	42	124	3. Positive responses
		Total=868			Total=249	
3	110	196	1. Experiential background			
	100	152	2. Knowledge background			
	83	116	3. Compatibility			
	175	356	4. Personal attributes			
		Total=820				
4	111	175	1. Change in personal ways of behaving			
	207	657	2. Change task performance behaviors			
		Total=832				

Table 2 . . . continued

5	194	451	1. Instructor competency	13	13	1. Student responsibility
	126	201	2. Personal characteristics viewed as being helpful			
		Total=652			Total=13	
6	166	338	1. Changes in ways of coping	65	71	1. Changes in priorities
	98	137	2. Changes in institutional interrelationships			
	120	148	3. Changes in self-directed thoughts or behaviors			
		Total=623			Total=71	
8	177	448	1. Cultivates institutional interrelationships	37	43	1. Ability
	117	157	2. Motivation			
	93	139	3. Quality of life and work			
		Total=744			Total=43	
9	167	382	1. Failure to cultivate institutional interrelationships	31	37	1. Lack of ability
	92	157	2. Lack of motivation	5	5	2. Everything is different
	99	135	3. Lack of quality of life and work			3. Positive responses
		Total=674			Total=5	
11	118	193	1. A change in the way of thinking	8	8	1. No recent information
	101	188	2. Behavioral changes	29	33	2. Support
	116	177	3. Personal growth	29	33	3. Value of education
		Total=558			Total=74	

Table 2 . . . continued

14	107	159	1. High motivation			
	116	180	2. Quality of performance			
	156	320	3. Scholastic skills			
		Total=659				
15	97	139	1. Lack of sufficient or appropriate motivation	38	57	1. Personal issues
	98	135	2. Attitudes and behaviors affected quality of work	22	33	2. Lack of support
	111	168	3. Scholastic skills did not exist in sufficient quantity			
		Total=442			Total=90	

Grand Total (Number of Responses in Major and Minor Categories) = 8739

Question 1: List as many of the qualities, characteristics or traits that you can about the student who has high grades: The total number of responses given to this question was 1322. Five sorting codes (categories) were established for the responses to this question: (1) influence of background, (2) cultivating institutional interrelationships, (3) motivation, (4) personal qualities, and (5) quality of life and work. Several analytic codes appeared under each sorting code. Of the five sorting codes, all were major category codes according to the criterion set for determining a major category.

Major Categories:

(1) Influence of Background - A total of 119 responses were given by 79 students. Students responding to this category indicated that background was a contributing factor in the description of the student with high grades. Background was described as those influences that came through an historical perspective and/or the influence of the the family, either the family of origin or the current family. The descriptions which assisted in clarifying the nature of this category were: (a) an ability which was a natural ability to learn or to have learning come easily, (b) the environment was supportive of the student's educational goals and efforts, (c) the historical aspect of the family of origin was defined by behaviors which encouraged learning at home, (d) an inherited or innate intelligence, and (e) the socioeconomic status of the family implied that there was wealth. Examples of responses to each of these analytic codes are as follows: "learning has always come easy," "student has a quiet place to study," "parents encouraged reading at home," "intelligent, keen mind," and "rich."

(2) Cultivating Institutional Interrelationships - "Cultivating institutional interrelationships" was a major category with 149 students providing responses to this category. It had the most responses of any of the sorting codes for this question (421). The term referred to the types of tasks that students attempted in

a program, or educational situation to meet the requirements and demands of the educational system. The term "institutional interrelationship" is borrowed from the work of Coles (1987) and is used here in a similar manner. Eight classes of behaviors were used to further explain the category: (a) academic skill performance, assumed to be taking place outside of the classroom situation, (b) interactive behaviors in the classroom, (c) ability to concentrate, pay attention, or focus on the task at hand, (d) skill in communication, (e) a willingness to do more than the required work, (f) a willingness to seek help with difficulties in course work, (g) regular performance of academic skills and classroom behaviors, and (h) a willingness to spend the time to do the work. By far, the most frequent responses were those describing academic skill and interactive classroom behaviors.

The term "academic skills" was used to describe a group of skills related to studying, applying knowledge, processing information, preparing for classes and exams, using available resources, employing time management techniques, organizing, using specific techniques to complete the work, and attempting to understand course material. Examples of these responses were: "studies," "applies their knowledge," "knows how to find the important points," "does assignments before the deadline," "uses resources available," "sets schedules and can stick to them," "organized," "visualizes the information," and "tries to understand the material."

The second term used to identify behaviors within the institutional interrelationship category was a group called "interactive behaviors in the class," which identified behaviors that students demonstrated in the classroom situation. These behaviors were described as: attending classes, being punctual, relating to the instructor, utilizing feedback constructively, asking and answering questions, sitting at the front of the class, taking notes, listening to the

lecture, participating in the class, and talking to others about the course. Examples of responses to this code were: "attends classes," "gets to know the instructor," "gets positive feedback which they can do something with," "asks and answers questions in class," "sits toward the front of the class," "takes notes," "listens," "outspoken in class," and "talks with other students about the course."

The next analytic code referred to the student's ability to concentrate, pay attention, or focus on the task at hand. Although it appeared to be a relatively minor descriptor, a number of responses indicated that this was a factor in describing the nature of the student with high grades. An example of a response for this code is: "works without distractions." Another set of responses indicated that the student with high grades had communication skills. In this case, the student was perceived as being able to communicate ideas through speaking or writing. An example of this code was: "can express themselves in class or in writing."

The next specific analytic code, "does more than the required work," indicated that students identified the student with high grades as being someone who does more than what is assigned by the course instructor; in other words, the student would read the related readings or do extra work beyond the assignments. An example of a response to this category would be: "reads related readings." Another analytic code, "seeks help or assistance," indicated that the student sought help when it was deemed necessary as shown by the following example: "ask for help if they need it."

"Regular performance of a behavior" was an analytic code defined to identify those responses where students indicated that academic skills and interactive in-class behaviors were performed on a regular or continual basis, as in the following examples: "works on courses regularly," "reviews regularly,"

and "attends class all the time." This description is distinguishable from the academic skills behavior code and the interactive in-class code in that the emphasis is on continual or repeated performance. However, it is difficult to make any assumptions about why some students chose to point out the regularity of certain behaviors and others did not. The next description in the institutional interrelationship category was the "time" code, which referred to students taking time to do the work required by their programs, as in the example, "takes time to do the work."

(3) Motivation - The next major category that students used to describe the student with high grades was termed "motivation," with 128 students generating a total of 244 responses. Coon (1986) defines motivation as, "the dynamics of behavior, the processes of initiating, sustaining and directing activities" (p. 285) and this definition was utilized to help define this category. Two analytic codes were subsumed in this category: general motivation and placing education as a priority. General motivation comprised a number of different subsets: motivation, caring about school and school related activities, having goals and expectations, being interested, conscientious, dedicated, curious, willing to put in the effort, willing to work hard, persistent, and demonstrating an enjoyment of learning. Of these descriptors, the most frequently mentioned was a willingness to work hard. Some other examples were: "dedicated," "is a hard worker," "is expected to have high marks, no choice about it," "competes to achieve the highest marks," and "someone who enjoys school." A few students responded by indicating that education was a priority and took precedence over other activities, as in the following example: "sacrifices social life to do the work."

(4) Personal Qualities - The next major category that students used to describe students with high grades was the personal description category

which consisted of descriptions of appearance and personality. Three hundred and eighty three responses were generated by 145 students. Descriptions of appearance were few but varied widely from "wears glasses," to "has long dark hair," to "well-groomed," and "chubby." A minor analytic code identified these individuals as mature: "mature" or "responsible." Most of the personal codes were words or phrases describing perceived personality characteristics.

Eysenck (as cited in Pervin, 1981) classified four personality types into two categories: the stable and the unstable personality. The stable personalities were called the phlegmatic and the sanguine personalities and the unstable were called the melancholic and the choleric. The reason for choosing Eysenck's theory for this analysis was that most of the personality characteristics listed by the students appeared to fit under one of these dimensions. The majority of the personality codes in Question 1 coincided with the characteristics of one of the stable personality types, the phlegmatic or the sanguine. A few descriptions could be classified as either melancholic or choleric. Whenever this occurred, these descriptions along with those of appearance could be combined to form the stereotypic "nerd" picture of a student. As an example, one student wrote: "smart, glasses, klutz [sic], socially dumb, upper class."

Eysenck (as cited in Pervin, 1981) listed the characteristics of the stable phlegmatic personality as follows: passive, careful, thoughtful, peaceful, controlled, even-tempered, and calm. He described the stable sanguine personality as: sociable, outgoing, talkative, responsive, optimistic, easygoing, lively, carefree, and displaying leadership. Students used descriptions which could apply to either personality type such as: "nonexcessive [sic] emotions over marks," and "relaxed in life." As well, a number of responses indicated that students with high grades had self-confidence, liked themselves or had a

personal sense of who they were (i.e., self-knowledge). Next to the analytic code which described students as being hard workers, self-confidence was the most frequently mentioned analytic code.

The unstable personality, as described by Eysenck, consisted of two basic personality types: the melancholic or the choleric. The characteristics of the melancholic personality (see Pervin, 1981) are as follows: moody, anxious, rigid, sober, pessimistic, reserved, unsociable and quiet. The choleric personality is: touchy, restless, aggressive, excitable, changeable, impulsive, and active. For the few responses that described the student with high grades as unstable, most phrases applied to the melancholic personality as in the following examples: "serious about things," and "socially dumb."

(5) Quality of Life and Work - The final descriptive category was termed "quality." One hundred and six students gave a total of 155 responses to this category. The category referred to a quality of existence related to work, usually school work, and life. References to quality were ascertained to be associated with attitude, a necessary balance of activities, neatness (as in a neat worker), quality itself described with words such as good, efficient, well, proper, and best, and quality of an academic skill or interactive class behavior. Responses which fell into this category were: "has a good attitude about school," "has time for other aspects of life," "neat worker," "the student does her best," "can organize well," "is a good listener," "is able to speak well."

Summary:

In summary, all five categories in this question were major categories. Within these categories, students indicated that the most frequently identified characteristics of the student with high grades were related to cultivating institutional interrelationships and personal qualities. Academic skills and interactive behaviors in the classroom were the most commonly identified of any

of the analytic codes. One of the most frequently mentioned personal descriptions was related to the student's level of self-confidence or self-concept. Other related, but not as frequently mentioned categories, were descriptions of background, motivation, and quality of life and work. However, under the category of motivation, the response identified by the largest number of respondents referred to the student with high grades as being a hard worker or displaying a willingness to work hard.

Question 2: List as many of the qualities, characteristics or traits that you can about the student who has low grades: The total number of responses to this question was 1117. The five categories were similar to those in Question 1: (1) influence of background, (2) failure to cultivate institutional interrelationships, (3) lack of motivation, (4) personal qualities, and (5) lack of quality of work and life. The definitions for these categories are outlined in detail in the Question 1 results section. However, the orientation of the definitions is contrary to the categories in Question 1. Three of the above categories were classified as major categories, two were minor categories, and one was classified as a minor category with positive responses. This differs from Question 1 in that all five of the categories were considered to be major categories.

Approximately 10% of the total number of responses (124 out of 1117) were positively worded and were separated from the negatively worded statements for the analysis. Forty-two students made positively worded statements or descriptions. For these statements, combinations of responses were identified to help clarify the nature of the positive responses. The limited number of positive responses made this possible for this question. These patterns will be discussed at the end of this section titled "Minor Categories: Positive Responses."

Major Categories:

Three of the five categories were major categories: (1) failure to cultivate institutional interrelationships, (2) lack of motivation, and (3) personal qualities.

(1) Failure to Cultivate Institutional Interrelationships - A total of 369 responses were generated in this category by 159 students. In failing to cultivate institutional interrelationships, the student with low grades was seen as lacking academic skills or not performing these skills. All student responses in the academic skill code indicated an absence or lack of these kinds of skills, as illustrated in the following examples: "does not use the library," "doesn't know how to study," "they pick assignment topics that could be considered vague and for which there is little or no information," "does not study," "procrastinates," and "cram for exams."

Responses referring to a lack of interactive classroom behaviors were frequent although some students saw the student with low grades as being interactive in the class. Examples of the positive responses were: "takes notes," "pays attention to lectures," "listens," "copies down everything," and "asks questions in class." Some of the more frequently mentioned classroom negative behaviors were not attending class, not paying attention, not participating in the class, and acting the part of the class clown. Examples of these responses were: "misses classes," "talks in class," "visits with a friend in class," "will not ask or answer questions," "jokes around," and "the class clown."

Still within the "failure to cultivate institutional relationships" category, specific responses indicated that a number of students felt that one of the difficulties of the student with low grades was the inability to concentrate, attend to, or focus on the task at hand as in the following example: "can't concentrate on their work." As well, communication skills were deemed to be lacking. That is, the student with low grades was described as not being able to get ideas

across and lacked clarity of expression in writing or speaking as illustrated by the following example: "can't express themselves in writing." These same students were also described as doing only the minimum amount of work (e.g., "takes minimal notes") and as not seeking help when difficulties arose (e.g., "doesn't ask for help if having problems"). Some responses indicated that the student might be having general problems with the course itself (e.g., "they may have some problems with the course"). A number of responses described the student as not performing academic skills or in-class interactive behaviors on a regular basis (e.g., "doesn't always do the homework," or "does not always attend class").

(2) Lack of Motivation - Lack of motivation was also a major response category with a total of 207 responses given by 119 students. Responses described students as mostly lacking motivation by not caring, not having goals, not being persistent, not being achievement oriented, not putting effort into their work, etc. Other responses in the lack of motivation category indicated that education was not a priority and that other activities took precedence over studying or working on school-related work. Examples of responses in this category were: "easily bored," "not motivated," "don't know what they really want to do," and "likes to go out a lot." Fifteen responses indicated that the students were motivated and these will be discussed in the section titled, "Minor Categories: Positive Responses."

(3) Personal Qualities - The third major response category, personal qualities, referred to descriptions of appearance, personality characteristics, and negative self-confidence references. Two hundred and ninety-two responses were generated by 132 students. The descriptions of appearances did not follow any particular pattern and so a wide range of descriptive phrases occurred such as: "wears glasses," "has long hair," and "is the jock type."

Personality characteristics described either the melancholic or the choleric personality type shown by the following examples: "quiet," "not social," and "gets anxious." The few positive personality descriptions mentioned were indicative of the sanguine personality, with specific reference to social skills such as: "gets along with the other students," "is nice," and "talks to everyone." Self-confidence was seen to be lacking and, in four cases, responses indicated that the students were over-confident. None of the positive personality characteristics were indicative of the phlegmatic personality type.

Minor Categories:

There were two minor categories in answer to Question 2: (1) influence of background, and (2) lack of quality of work and life.

(1) Influence of Background - There were a total of 55 responses given by 45 students in response to the analytic codes in this category. The descriptions within this grouping consisted of: lack of a natural ability to learn or learning did not come easily (e.g., "they may have ... unrecognized learning difficulties," or "they may not catch onto new ideas"), the home environment was not conducive to academic learning (e.g., "too noisy at home to study"), parents did not encourage or assist with learning at home (e.g., "parents did not read to the child ..."), and socioeconomic status contributed in some way to the student's academic performance (e.g., "poor").

(2) Lack of Quality of Work and Life - In this category, a total of 70 responses were provided by 52 students. The student was viewed as having a negative attitude towards school or education (e.g., "has a poor attitude towards school"). A balance of activities in life was viewed as absent (e.g., "doesn't balance school work and socializing") and quality of work was missing (e.g., "do not do their best"). At times, lack of quality of work was combined with academic skills, interactive classroom behaviors, or communication skills as in the

following examples: "careless with assignments," "doesn't take adequate notes," "poor listener," or "can't write well." In order to be assigned an analytic code to represent lack of quality, adjectives such as poor (as in poorly done), careless, inadequate, or inefficient had to be present.

Minor Category: Positive Codes

Of the 124 positively worded responses given by 42 students, the descriptions indicated that the student with low grades might demonstrate the following: natural ability, interactive classroom behavior, motivation, a pleasant appearance, and/or a stable personality. However, the student with low grades who was perceived to have some stable personality characteristics or a pleasant appearance was seen to be lacking one or a combination of the following: natural ability, motivation, academic skills, interactive class behaviors and/or self-confidence. The following examples illustrate these types of responses: "slow, social, doesn't finish assignments ...," "carefree, does not work, never studies ...," "personable talking to other people, has other demands on time, may be satisfied with just passing, doesn't participate in class ...," "very intelligent, very caring, compassionate toward others, low self-esteem," and "imaginative, manually efficient, very social, somewhat lazy." Where no personal qualities were mentioned, the student was seen to have ability but lack motivation, or vice versa. Examples are: "bright, priorities are not on school ...," and "is a hard worker ... but doesn't have what it takes."

Summary:

In Question 2, three major categories (failure to cultivate institutional interrelationships, lack of motivation, and personal qualities) and two minor categories (influence of background and quality of work and life) were determined by the responses to describe the student with low grades. Within the "failure to cultivate institutional interrelationship" category, all but one of the

analytic codes indicated a lack of, or absence of, a behavior. The "interactive classroom behaviors" were most often considered to be absent, but in a very few cases (6), students identified the presence of these behaviors. All but 15 students described the student with low grades as lacking motivation. Personal qualities were more varied, although the majority of the responses indicated either a melancholic or a choleric personality type. Of the minor codes, "influence of background" and "quality of life and work" did not have the same frequency of response as they did in Question 1. Another minor category, "Minor Category: Positive Responses," identified more specific patterns of responding when one of the descriptive responses was worded positively. Three patterns of responses were presented in this section: (a) the presence of positive personal qualities, but a lack of school-related behaviors, motivation or self-confidence, (b) natural ability present, but a lack of motivation indicated, and (c) motivation present, but a lack of natural ability described.

Question 3: List as many things as you can that you think would explain the difference between the two students' grades: The total number of responses to this question was 820. All the sorting codes were major categories as more than 68 students responded to each of the categories. The major categories were identified as: (1) experiential background, (2) knowledge background, (3) compatibility between student and educational institution, and (4) personal attributes. Experiential background was the term used to describe the influence of family history, the home and/or the family upon the student. Knowledge background referred to the educational experiences of the student. Compatibility defined the degree of relationship between the student and the educational system and implied a willingness or unwillingness to accept and work within the system. Personal attributes included personality characteristics

which were perceived by the respondents as having an effect on student performance.

Major Categories:

(1) Experiential Background - One hundred and ten students listed 196 responses to this category. More specific descriptions of background were made with references to the family, home environment, or childhood experiences (e.g., "different home environments"). Students identified ability, ease of learning, previous and present learning difficulties, and/or learning disabilities as factors which distinguished between the two students' grades (e.g., "for a student with high grades, it may be a natural talent," "this person doesn't have to work really hard to get the grades," and "has a learning disability"). Expectations of significant others also played a role in grade achievement (e.g., "being forced to be in college by parents"). A belief in a self-fulfilling prophesy also was a contributing factor (e.g., "the student who gets low grades tends to expect that this will always happen") as was the level or degree of personal or financial support while at school (e.g., "parents pay").

(2) Knowledge Background - For this analytic code, a total of 152 responses were listed by 100 students. Students indicated through their responses that, at postsecondary levels, there must be some previously acquired knowledge or skills that influence the student's ability to deal with the current material. The descriptive responses made reference to a knowledge or lack of knowledge regarding academic skills (e.g., "they don't know how to study"), a facility to engage in conceptual thinking for comprehension of the material at hand (e.g., "they grasp new concepts and use them in their work"), and a quality of education sometimes expressed as proper or previous instruction (e.g., "have not been taught in all areas of learning").

(3) Compatibility - Eighty-three students listed 116 items relating to this category. The category referred to the degree of compatibility between the student and the educational institution, i.e., the student was willing or unwilling to go along with the requirements of the educational system. More specifically, the analytic codes revealed that responses fit into four different groupings: (a) a willingness or unwillingness to engage in interactive classroom activities, (b) a willingness or unwillingness to cooperate with instructors, demands made by the system, and demands made in the courses, (c) a willingness or unwillingness to obtain help or assistance if needed, and (d) education is considered to be important or unimportant to the individual. Examples of each of the above analytic codes were: "degree of risk - sharing with the class, expressing opinions and participation," "one doesn't cooperate with authority figures as well as the other," "does not ask for help from peers or instructor," and "one might care about getting a good job and continuing his/her education while the other might not."

(4) Personal Attributes - A total of 356 responses were generated by 175 students responding to this category. Personal attributes referred to the personality characteristics or personal descriptive qualities of the students in question. Attitude, a strength of interest or readiness to carry out a particular course of action, was identified as one of the characteristics which distinguished the two students, as in the example, "Do they possess a positive/negative attitude towards school?" Health factors related to diet, rest, illness, and injury were also listed as intervening variables. One student provided the following response related to health, "take good care of themselves." A level of maturity was identified which was expressed sometimes in reference to age, responsibility, self-discipline, or dependability. An example of this type of response was: "these students are older." Motivation was also a contributing

factor, as in the following examples: "enjoy learning," "for a student with low grades it is usually a lack of effort and willing to try," "school aspirations," and "the student with high marks knows what she wants out of life and is serious in achieving it." Personal traits and qualities related to the management of anxiety or stress, personality characteristics, or coping strategies and abilities were referenced in these responses, as in the example, "their actions and reactions to different situations." The last analytic code used to describe the differences between the two students was the level of self-concept, defined as the degree to which one believes in, trusts, likes oneself, and has self-confidence, self-esteem, self-image, and a sense of self-worth. A typical example of a response to this code was: "self-confidence plays a major factor in the ability to learn."

Summary:

Four major groupings of responses were identified which helped to distinguish between the student with low grades and the student with high grades. They were: the experiential backgrounds of the students, the background knowledge that the students had or had not acquired, the degree of compatibility between the student and the educational system, and the personality of the students. The largest number of total responses and the largest number of individuals responding fell under the personality category.

Question 4: What kinds of things could the student with low grades do to raise the marks? The total number of responses to this question was 832. The overall theme that emerged was "change." However, change was seen to be needed in two different areas of student functioning: (1) change personal ways of behaving, and (2) change task performance or on-task behaviors related to improving performance. Both change categories were major categories.

Major Categories:

(1) Change Personal Ways of Behaving - One hundred and eleven students provided a total of 175 responses to this category. The category identified three areas in which personal change needed to occur: (a) re-evaluating or prioritizing goals, (b) improving self-directed thoughts related to self-concept and motivation, and (c) matching social interactions with school tasks by associating with other students who were doing well. Examples of responses to each of these three analytic codes were: "relate schoolwork to goals in life," "want to get better grades," and "make friends with students who get high grades."

(2) Change Task Performance Behaviors - Two hundred and seven students generated a total of 657 responses to this category. The kinds of changes that were identified were grouped as follows: (a) improvement of academic skills, (b) Improvement of classroom behaviors, (c) completing course work, assignments, work, and/or readings, (d) do more than was previously done, (e) get help, support or assistance from someone, (f) analyze learning problems or have them assessed, (g) reduce or stop outside interferences or activities, and (h) perform academic or classroom behaviors on a regular basis. Examples from each of these eight analytic codes were: "do some research on learning strategies and attempt to use them, "... also ask more questions during class," "do his/her homework as soon as she gets home," "study a little more for midterms ...," "seek guidance from family member or school teacher," "find out if they have any type of a learning disability," "reduce stress or other factors (jobs, responsibilities, etc.)," and "read over new notes each day after class and also review notes from beginning of year 2-3 times a week."

Summary:

In order for the student with low grades to raise the marks, students responding to this question indicated that the student with low grades had to make changes in two areas: personal aspects of behaving and thinking, and change the way in which tasks are performed or change on-task behaviors so that performance is improved. Three students indicated that one of the ways to improve grades was to "cheat," but the three responses were insufficient to establish an analytic code.

Question 5: What kinds of things could the instructor do to help the student with low grades raise the marks? In response to this question, a total of 665 responses were listed. The responses fell into three sorting codes: (1) to assist the student in raising the marks, the instructor should demonstrate competency, (2) the instructor should demonstrate personal characteristics that are viewed as being helpful to the student, and (3) the instructor has no responsibility in this matter, the changes that need to be made to raise grades are the responsibility of the student. The first two codes were classified as major categories and the third was a minor category.

Major Categories:

(1) Instructor Competency - One hundred and ninety-four students provided a total of 451 responses to this sorting code. These responses fell into 23 different analytic codes. The analytic codes indicated the instructor should:

(a) endeavor to teach the student different types of academic skills, e.g., "teach student how to organize notes,"

(b) be willing to make adjustments in teaching or teaching styles to meet the needs of the student, e.g., "try different teaching method,"

(c) make available alternate techniques for testing students or assisting them with their learning, e.g., "make arrangements for things like extra time if they felt the student had a learning difficulty and needed it,"

(d) give assignments that are meaningful and/or relevant, e.g., "try and provide assignments that would appeal to them,"

(e) give clear instructions, lectures, explanations, answers to questions, or outlines, e.g., "explain the problem another way,"

(f) encourage cooperative learning such as group work, study groups, or sharing, e.g., "pair up students to exchange ideas,"

(g) avoid degrading the student or making the student feel incompetent, e.g., "don't make the students feel like their questions are dumb,"

(h) respond to student feedback about teaching, e.g., " be receptive to student feedback about the class,"

(i) provide examples or practical applications of what is being taught, e.g., "try to include examples, etc. when explaining theories, ideas, etc.,"

(j) provide extra work, extra assignments, or remedial work, e.g., "send home extra work,"

(k) provide feedback to the student about performance in the course, e.g., "devote attention to pointing out past mistakes and explaining how to correct them,"

(l) assist or help the student, sometimes by providing one-on-one instruction or tutoring, e.g., "depending on the size and structure of the class, more one on one time," "spend extra time with the student,"

(m) spark interest in the class or make the class more interesting, e.g., "talk in a more lively way so the student is alert and interested," "find ways to make the information more interesting in order to motivate that person,"

(n) monitor problems and/or progress of student, e.g., "supervise without suffocating," "find out what areas are causing problems,"

(o) establish office hours or be available outside of class time to meet with students, e.g., "be available to help after class,"

(p) pace lectures, e.g., "may go at a slower pace but not so slow that the rest of the class is bored,"

(q) encourage class participation, e.g., "student involvement in the class,"

(r) provide time for students to ask questions in the class, e.g., "the instructor allowing time for and answering of questions,"

(s) make provisions for class quizzes that are not regular exams, e.g., "give mini quizzes in order to find out what a person knows and doesn't know,"

(t) make referrals to outside sources that would assist the student with difficulties, e.g., "give him a tutor, if he needs it or feels threatened by the instructor,"

(u) repeat important points and information, review concepts, e.g., "summarize the important points,"

(v) assess student understanding, e.g., "make sure students understand the material covered," and

(w) have a method of teaching that assists students in understanding, e.g., "... make sure he/she (the instructor) is organized."

(2) Personal Characteristics Viewed as Being Helpful - One hundred and twenty-six students generated a total of 201 responses to this category. Six personal qualities that the students viewed as helpful were: (a) being encouraging and supportive of the student, (b) listening to the student, (c) having or demonstrating patience, (d) establishing rapport by being interested and concerned about the student, (e) being willing to talk to the student, and (f) being understanding and approachable. Examples from each of the above

categories were: "encourage him," "be there to listen when they have failed," "show the student concern and interest," "be willing to talk to the student," and "the instructor must be viewed as an understanding, friendly, approachable individual."

Minor Category:

One of the three sorting codes or categories was a minor category and 13 students gave a total of 13 responses to this category. The sorting code was labelled "student responsibility" and there were no analytic codes. Responsibility for improvement of student marks was placed directly on the student, not on the instructor, as is shown by the following response, "it's found in yourself by yourself."

Summary:

Three sorting codes were established from the responses to this question. Of these, two were major categories and one was a minor category. The major categories suggested that in order to help the student with low grades, the instructor should demonstrate competency and personal interest in the student. The minor category indicated that the instructor was not responsible for assisting the student with low grades to raise the marks, but rather the responsibility was with the student to do so.

Question 6: What sorts of things could contribute to the student who presently has high grades receiving lower grades? A total of 694 responses were listed to this question. As in Question 4, the overall theme was "change." But here, change came as a result of four factors or sorting codes: (1) changes in ways of coping, (2) changes in the institutional interrelationship, (3) changes in priorities, and (4) changes in self-directed thoughts or behaviors. Three of the above codes were major categories. One minor category, "changes in priorities," was identified.

Major Categories:

(1) Changes in Ways of Coping - For this category, a total of 338 responses were provided by 166 students. The changes in ways of coping usually referred to a strain being placed on the student's coping strategies or coping mechanisms through burnout, crises outside of school, depression, disability, unrealistic expectations by the student or significant others, financial problems, health-related problems, personal problems, stress, loss or lack of support, and work-overload. Examples provided by the students to this category included: "burnt out," "outside traumas," "depression," "brain injury," "expectations of current instructors," "financial worries," "illness, missing school," "family/marital problems causing distractions," "stress," "no support or encouragement," and "a large workload, fall behind in courses (took on more than they could handle)."

(2) Changes in the Institutional Interrelationship - Ninety-eight students generated 137 responses to this category. The analytic codes within this category referred to lack of performance of academic skills, lack of classroom interactions, problems with the course itself, and problems with the instructor. More specifically, examples suggested the following: "not taking time to really think of what the assignment is about, in other words, being off topic and getting a low mark as a result," "not paying attention," "truly does not understand the class work," and "personal dislike of professor."

(3) Changes in Self-Directed Thoughts or Behaviors - The total number of responses, 148, was given by 120 students. The changes in thoughts and ways of behaving manifested themselves by affecting school performance. For the student whose grades dropped, the following was seen to be occurring: apathy was present, a loss or lack of motivation was evident, over-confidence affected grades negatively, and a loss or lack of confidence was present. These

analytic codes are illustrated by the following examples: "not caring," works less," "she could become too confident," and "he could lack confidence about this course."

Minor Category:

One minor category, "changes in priorities," had a total of 71 responses, generated by 65 students. The term referred to a shift from school being the priority to other priorities, such as a job, succumbing to peer pressure, outside activities (including falling in love), or the realization that the student is in the wrong program. Examples of these responses were: "work after school," "peer pressure," "become interested in extracurricular activities," and "wrong course."

Summary:

Four factors influenced the student with high grades and contributed to lower grades. Three of these influences were defined by major categories: (a) changes in the way in which the student was able to cope, (b) changes in the manner in which the student performed course-related work, and (c) changes in the way the student viewed him/herself or school activities. The one minor category, "changes in priorities," indicated a shift away from seeing education as the top priority to viewing it as a lower level priority.

Question 8: What kinds of things does the student with high grades do to get these grades? For Question 8, a total of 787 responses were generated by the students. Four sorting codes were formed from the responses, three of these being major categories. They were: (1) cultivates institutional interrelationships, (2) is motivated, and (3) student focuses on quality of life and work. These three categories are identical to those categories established in Question 1. The single minor category, ability, was established due to a sufficient number of responses even though it did not directly answer the question. Four students indicated that the student with high grades did nothing special or unusual to

achieve these grades. This is not discussed as a special category because the numbers of responses do not fall within the guidelines for creating an analytic code.

Major Categories:

(1) Cultivates Institutional Interrelationships - A total of 448 responses were given by 177 students to this category. As in Question 1, "cultivating institutional interrelationships" referred to the student's willingness to go along with the requirements of the educational system, its rules, and its work demands. Academic skills, interactive classroom behaviors, attending to the task at hand, doing more that was required, seeking help, and performing these behaviors on a regular or continual basis were all identified as analytic codes within the category. Examples of responses to this category were: "they gather information and begin with a thesis statement," "takes notes," if a problem arises, get it cleared up," "always does a bit extra, for example, the student would include an example in a test or add something extra in an assignment," "looks for additional study help," and "always present in class."

(2) Motivation - One hundred and seventeen students listed a total of 157 responses to this category. The definition for motivation is provided in Question 1. As in the first question, the students were motivated to achieve, to put in the effort, care, set goals, and consider education a priority. Students responding to these analytic codes gave the following types of examples: "has clear, meaningful goals for him/herself," "motivated," "works hard," and "focus on education, reading books, etc., all year long not just during the school year, e.g., library cards for children."

(3) Quality of Life and Work - For this category, 93 students listed a total of 139 responses. Quality was viewed as being influenced by attitudes, work ethic, support, and methods used to achieve the desired outcome. As examples,

students listed the following: "their approach to studying will be positive," "keeps a balance, spends time doing physical activity not requiring mental thoughts as well as doing one's studies to give the brain a rest," "does the work to the best of her ability," "has confidence," and "help from parents/others."

Minor Category:

(1) Ability - Thirty-seven students generated a total of 43 responses to this category. This category was both a category and an analytic code. There were no other analytic codes. Although the response does not directly answer the question, enough students identified it to be included in the discussion. Ability referred to a natural or inherited intelligence or talent within the student. An example of a response coded in this category is "innate brightness."

Summary:

Four categories or sorting codes were identified from the 787 responses generated by the students. Of these categories, three were major: cultivates institutional interrelationships, is motivated, and factors influencing the quality of one's life and work. One minor category, ability, identified the student who obtains high grades as having an inherited ability to do so. Four students indicated that there was nothing special about the approach a student with high grades uses to achieve these grades.

Question 9: What kinds of things does the student with low grades do or not do to get the low grades? As with Question 2, the responses to this question varied somewhat. A total of 719 responses indicated behaviors the student was not engaging in to receive better grades. A total of 27 responses identified by 18 students made reference to behaviors the student was performing, which under a different combination of circumstances, would have led to better grades. These combinations will be discussed under the section on "Minor Category:

Positive Responses." Three students indicated that the student with low grades did nothing different from the student with high grades.

Of the five categories or sorting codes, three were major categories. They were defined as: (1) failure to cultivate institutional interrelationships, (2) lack of motivation, and (3) lack of quality of life and work, which included a large grouping of analytic codes related to negative perceptions of self. The two minor categories were: (1) lack of ability, and (2) everything is different.

Major Categories:

(1) Failure to Cultivate Institutional Interrelationships - A total of 382 responses were generated by 167 students in this category. All analytic codes were identical to those given in Question 2. The student with low grades: did not perform academic skills, was not interactive in the classroom, was unable to concentrate on the work at hand, did the minimum amount of work, didn't seek out help or assistance when it was needed, was not working on a regular basis, and did not put in the time to get the work completed. Examples of each of these types of responses were: "they don't study," "not paying attention in class," "spends study time not studying, looking around, arranging books and paper, etc.," "doesn't give 100%, just does enough to get by," "doesn't ask for help from the professor," "does not review notes each night," "doesn't put in the time to get the work done."

(2) Lack of Motivation - Ninety-two students listed a total of 157 responses for this category. The responses indicated that the student was not motivated to work, was not willing to put in the effort, did not have a clear set of goals, did not care about school or grades, did not see educational endeavors as important, and had outside interferences which detracted from school work. Some examples of responses to this category were: "is not motivated," "not

especially high goals (in grades)," "they would watch a lot of tv," and "school not important."

(3) Lack of Quality of Life and Work - Ninety-nine students generated 135 total responses which referred to the influences which affected quality, in this case, negatively. Those influences were: not balancing work and play, not doing quality work, fearfulness or worry, negative perceptions of self, and self-fulfilling prophecies. Some examples provided by the students were: "doesn't keep social life and school life in balance," "does not study properly," "scared to ask for help," "they have often failed so they do not wish to rely on their own decisions for fear of failure once more," "this student worries," and "says I just know I'll get everything wrong sits down to do the test, knows nothing at all, draws a blank and fails her test."

Minor Categories:

(1) Lack of Ability - Thirty-one students generated 37 responses to this category which referred to lack of a natural or inherited ability, lack of conceptual abilities, lack of knowledge, or the presence of learning problems. Examples of responses to this category were: "they don't catch on as quickly as the student with higher grades," "doesn't know how to study," and "may have a learning disability."

(2) Everything is Different - Only five students generated a total of five responses in this category. No behaviors, attitudes, or self related explanations were given. All that was stated was that "everything is different" or that "nothing is the same."

Minor Category: Positive Responses

As was previously mentioned, 27 responses were given by 18 students which indicated that the student with low grades did not lack certain behaviors. The behaviors that were identified as being present were: the performance of

academic skills, interactive classroom behaviors were present, help for difficulties was sought, motivation was evident, and time was spent on assignments and work. The only behavior indicator present in sufficient numbers to qualify as an analytic code was "motivation." Where motivation was listed as being present, it was usually combined with a response which indicated a lack of ability, as in the following examples: "may study hard but has problems understanding," and "are willing to succeed but can't grasp concepts." Although the other qualities were few in number, the students who did provide them referenced themselves as performing the correct behaviors but still having problems with grades. As one student wrote, "In my own case I do notes in class, and read the text (but I remember most of the things I hear in the lecture) or if I get all the text on tape it helps quite a bit and I attend all classes, study with another person and get tutoring. I do the same for all my classes but I'm having trouble with my grades."

Summary:

Of the 719 responses indicating a "lack of," three major and three minor categories were described. The three major categories referred to: a lack of appropriate behaviors necessary for cultivating institutional interrelationships, a lack of motivation, and a lack of attitudes and behaviors which would enhance the quality of life and work. The three minor categories referred to: a lack of ability to do the work, everything that the student with low grades does is different from what a student with high grades does, and the presence of some behaviors viewed as being consistent with those performed by students with higher grades. However, in this latter category, some form of ability was seen to be lacking.

Question 11: Thinking back on your experiences of being a student, what recent information has given you a broader perspective on what it means to be

a better student? A total of 632 responses were generated and the responses were grouped into six categories. This question presented the most difficulty for coding as the responses varied greatly. The question also had the lowest inter-rater reliability for one of the raters. The three major categories were: (a) a change in the way of thinking has come about so that there is more of an inclination on the part of the student to work at the tasks, (b) the students have sought to act or behave in a way which meets the requirements or to do better work, and (c) personal growth has led to some form of self-awareness. Three minor categories were identified: (a) there has been no information that has made any difference, (b) the need for support from others is acknowledged, and (c) education is seen to have value.

Major Categories:

(1) A Change in the Way of Thinking - For this category, 118 students presented a total of 193 responses. All references to these changes were associated with attitudinal or motivational changes as a result of some intervening variable. In the majority of cases, the intervening variable was not identified. Attitudes were reflected in general responses to attitude, responses to appropriate programs, and attitudes about self. Some examples of responses given by the students reflecting these attitudinal changes were: "change attitude towards school and study," "LD program ... has helped," and "felt good about myself."

Other changes were motivational in nature and were specified as general motivation, willingness to improve on the quality of work/life, and motivation to meet certain standards set by the educational institution. Some examples of these responses were: "I really tried," "do the best I can," and "I need very high marks to get into the faculty I want."

(2) Behavioral Changes - One hundred and one students provided 188 total responses for this category. Behavioral changes were meant to improve performance. These behaviors were related to improving academic skills and interactive classroom behaviors, balancing life and work issues, comparing learning strategies with others, doing more than had previously been done, setting regular work schedules, setting rules for self, taking time to do the work, and sacrificing some parts of life in order to remain in school. Some student responses were: "study harder," "get to know the instructors well," "balance your social life and school work," " ... I've watched how my fellow students have studied and how well they've done and compared their strategies to mine ...," "higher grades means extra reading or extra research," "to use strategies and techniques ... regularly," "placing limits on myself," "need to take time to do the work," and "sacrifice my social life."

(3) Personal Growth - A total of 177 responses were generated by 116 students. The category referred to personal experiences that led to some form of self-awareness of the individual as a person or student. These experiences were described as: coming to terms with self and abilities, took a course which led to more knowledge, recognized individual differences among learners, influences of past experiences, learning something about own way of learning, becoming mature, and some self-revelation or self-evident truth had appeared. A few specific examples provided by the students were: "I will never be an A student. I'm happy to be a C student," "I took the master student course," "we all learn differently, we're not the same," "when I found out my g.p.a. (HaHa) was 1.5," "to do what works for me," "settling down," and "you reap what you sow."

Minor Categories:

(1) No Recent Information - Eight students provided 8 responses to this category. The implication was that there had been no recent information which

shed light on what it means to be a better student. Most responses were briefly stated, "nothing."

(2) Support - Twenty-nine students listed 33 responses for this category. In this category, the support of others was acknowledged as playing a part in being a better student. Two analytic codes were identified: (a) acknowledging the need for outside help, and (b) general support, which could be either personal support, educational, or financial support. Examples given were: "have learned recently that I need more 'outside' help," and "have family support."

(3) Value of Education - Twenty-nine students generated 33 responses for the value of education category. Responses indicated that education has value in that it applies beyond the classroom influencing jobs, goals, and life. It also contributes to knowledge acquisition, develops specific skills, and teaches individuals how to think. Responses given that were typical of these analytic codes were: "looking forward to being in the field," "I have learned a lot," "... I know that I have to have good typing skills and accuracy in order to be a good secretary," and "to be able to take in, accommodate, assimilate, process information a lot easier."

Summary:

Six categories were determined to describe the kinds of recent information that students acquired about what it means to be a better student. Three of these categories were major categories: changes in the ways of thinking about education, changes in school related behaviors, and personal growth experiences. Three categories were minor categories: no recent information influenced what the students thought about what it means to be a better student, a need for support was acknowledged, and the value of education was described.

Question 14: When you felt successful in learning, what techniques did you use that contributed to this success? For this question, a total of 659 responses were generated. There were three categories or sorting codes defined by the responses and all three were considered to be major categories. They were: (1) high motivation, (2) quality of performance was important, and (3) specific scholastic skills were identified.

Major Categories:

(1) High Motivation - One hundred and seven students provided 159 responses for this category. It defined a level of motivation that appeared to be a higher level than was employed in another situation; in other words, it was a comparative code. Most of the student responses indicated that they had done extra work, spent more time, were able to focus on the task at hand, and generally worked harder. Examples of these types of responses were: "asked more questions to be sure I understood the material," "spend more time on the material," "concentrating," and "more effort in studying."

(2) Quality of Performance - One hundred and sixteen students listed 180 responses in this category. Quality of performance was reflected in the care that was given to the task, finding the task meaningful or relevant, production of quality work (indicated by adjectives such as good, proper, thorough), developing or having confidence in their abilities, reflection or evaluation of the work done, and seeking to understand the material. Some examples were: "didn't go until I was sure of the material," "apply the knowledge," "good notes," "learning I'm not stupid and I can do it," "reflecting back on what is learned so you realize the importance of the subject not only to the exam coming up in two weeks but also to your life as well as other classes," and "trying to understand it (the material)."

(3) Scholastic Skills - One hundred and fifty-six students generated a total of 320 responses. The category was called "scholastic skills" since it differed slightly from previous categories called "interactive interrelationships." The difference is that slightly more of an emphasis was placed on very specific academic skill techniques, repetition of the material to be learned, regularity of work, being focussed, and being prepared. However, academic skills were also mentioned as were interactive classroom behaviors. Examples of responses to this category were: "I studied all the material in a systematic way," "ask questions if not sure of the material," "reviewed the work nightly," "rereading the material," and "used index cards to learn the material."

Summary:

In response to this question, students indicated that the following behaviors occurred when they were successful in learning: they were more highly motivated to do the work, they were interested in the quality of work performed, and they performed scholastic skills on a more regular or continual basis. All three of the category responses to this question were considered to be major categories.

Question 15: When you felt unsuccessful in learning, what techniques did you use that you think lead to being unsuccessful? In responding to this question, students listed a total of 532 responses. Five sorting codes were identified and three of these were major categories. The three major categories were the opposite of the categories in Question 14: (1) lack of sufficient or appropriate motivation, (2) student attitudes and behaviors affected quality of work, and (3) scholastic skills did not exist in sufficient quantity to do as well. Two minor categories occurred: (1) personal issues interfered with school work, and (2) support was not available. As well, three students indicated they had never encountered this situation.

Major Categories:

(1) Lack of Sufficient or Appropriate Motivation - Ninety-seven students generated a total of 139 responses to this category. Students who responded indicated that a "quantity" of motivation was missing or that motivation was misdirected or inappropriate. Examples of responses to this category were: "pre-occupation with something ... so that nothing I attempted accomplished much," "caring that I pass and not that I do good," and "goofing off."

(2) Attitudes and Behaviors Affected Quality of Work - A total of 135 responses were provided by 98 students. The quality of the student's work was affected by attitudes towards school and self, as well as a lack of background knowledge and understanding of the course material. Examples of student responses were: "lack of ability," "feeling inferior," "regarded courses with a negative attitude," "tried to do everything as fast as others so I wouldn't be different," "rushed through assignments and hastily done science labs ... and caused them to look messy," "lack of knowledge of the subject," and "didn't really understand the topic I was studying."

(3) Scholastic Skills Did Not Exist in Sufficient Quantity - One Hundred and eleven students listed a total of 168 responses. Academic skills and interactive classroom behaviors were lacking and students did not take enough time to do the work. Spending insufficient time generated the largest number of responses in this category. Examples of responses from this category were as follows: "did not study," "not paying attention (to the lecture)," and "didn't spend enough time on it."

Minor Categories:

(1) Personal Issues - A total of 57 responses were generated by 38 students. Personal issues were defined by five analytic codes referring to issues of anxiety, emotions, health, personal problems, and trying to do too much.

Examples of each of the analytic codes were: "got anxious," "allowing anger to get in the way of learning," "did not exercise regularly," "problems with a friend," and "I studied myself to death too much."

(2) Lack of Support - Twenty-two students generated a total of 33 responses to this category. Lack of support referred to lack of encouragement from others, including the instructor, and lack of assistance or help, sometimes not requested by the student. Examples of these types of responses were: "other people assuming this was not for me," "teacher's attitude on what I was able to learn," and "not asking for help."

Summary:

Five categories were identified in the responses to the question: what techniques did students use when they felt unsuccessful in learning? The three major categories were: (a) lack of motivation or appropriate motivation, (b) attitudes and behaviors affected quality of performance, and (c) scholastic skills were not sufficient for better grades. Two minor categories made reference to: (a) personal issues interfering with education and (b) needed support was missing.

Research Question 2: Do the themes form identifiable patterns of similarity along the dimensions of group (LD, NLD), gender, and type of PSI (university, community college, technical school)?

(c) Analysis of Results for Research Question 2

Once every question had been coded and the categories identified, the data were entered into the StatView 512+™ program for statistical analyses. Each student's responses for each question by sorting code and analytic code were entered into the computer. Chi-square (χ^2) analyses were used to determine whether the observed frequency of the total responses for each

question was within the expected frequency of proportional responses. If any discrepancies were noted among the groups on these responses, individual sorting codes were scrutinized for possible differences and, in a few cases, analytic codes were also scrutinized. Such a procedure for chi-square analysis provides only a rough estimation of similarities and differences in total numbers of responses as the total frequencies of responses are not fully independent.

Total numbers of responses for each sorting code or category were used in the χ^2 analyses when overall differences were found. This was chosen over total number of individual students responding to each category. The researcher felt that students could have generated a number of responses to a single category because of perceptions that influenced a particular train of thought or a specific way of thinking about the situation presented in the questions. For example, a difference in perception may have been indicated when one student responded to a motivation category code five times and another responded to it only once.

For this part of the analysis, a sorting code (category) titled "no response," was used to account for any or all of the following: (1) no response at all, (2) data which was not coded due to insufficient numbers of responses to create an analytic code, and/or (3) inability on the part of the researcher to interpret the meaning of a response even though a response was indicated (2 and 3 will sometimes be referred to, collectively, as "unique" responses). Combining these three originally separate codes into one code also permitted this data to be used in the analysis as there was too little data in many of the original separate cells when "no response at all" was used as a separate code.

Analyses of Total Responses for Each Question by Group - Students With (LD) and Without (NLD) Learning Disabilities: Eleven questions were submitted to chi-square analyses to determine similarity in patterns of responses. Each of

the total number of responses for each question was analyzed by group (LD and NLD). No significantly different patterns of responding were identified for five of the questions. These results are presented in Table 3 and are considered to be only rough estimations. For those questions where differences were determined to exist, separate discussions of the results are presented, as follows.

TABLE 3.

Chi-square Analyses Indicating Similarity of Response Patterns - Total Number of Responses by Group

Question #	*df*	N	χ^2	*p*
2	6	1212	6.013	.3049
4	2	655	4.288	.1172
5	3	712	5.236	.1553
6	4	747	3.031	.5527
11	6	659	9.182	.1636

Question 1: In asking students what characteristics or qualities described the student with high grades, chi-square analysis on the total number of category responses (background, institutional interrelationships, motivation, personality, quality, no response) by group revealed statistically significant differences (χ2[*df* 5, n = 1401] 43.957, *p* = .0001). Closer scrutiny of each of the observed frequencies and the expected frequencies of category responses by the LD and NLD students indicated that three categories had significant differences: background (χ2 [*df* 1] = 15.211, *p* = .0001), cultivating institutional interrelationships (χ2 [*df* 1] = 5.5.842, *p* = .016), and no response (χ2 [*df* 1] = 18.787, *p* = .0001). LD students responded with more "background" codes and more "no response" codes than expected. Expected frequencies for NLD students indicated they had more than the expected number of responses for the "institutional interrelationship" category.

Question 3: When students were asked to give reasons for the differences between the two students' grades, chi-square analysis of the total number of responses of the categories (experiential background, knowledge background, compatibility between the student and the school, personal attributes, and no response) by group (LD and NLD) indicated statistically significant differences in the patterns of responding ($\chi 2$ [*df* 4, n = 838] = 21.623, p = .0002). Differences were detected in two categories: personal attributes ($\chi 2$ [*df* 1] = 6.056, p = .3049), and no response ($\chi 2$ [*df* 1] = 8.416, p = .0037). Students with LD had more "no response" codes than was expected and NLD students generated more "personal attributes." However, due to the low number of responses in the "no response" category, the differences may not be meaningful for drawing valid conclusions.

Question 8: When asked to list the things a student with high grades did to get these grades, students identified the following categories: ability, cultivates institutional interrelationships, motivation, quality of life and work, and no response. Chi-square analysis of the total number of responses by group indicated a significant difference ($\chi 2$ [*df* 4, n = 816] = 19.513, p = .0006). Further scrutiny of the data indicated differences in responding to two categories: ability ($\chi 2$ [*df* 1] = 7.88, p = .005), and no response ($\chi 2$ [*df* 1] = 7.177, p = .0074). For both categories, LD students provided more responses than were expected.

Question 9: In responding to this question, which asked what the student with low grades does to get these grades, five categories were identified: lack of ability, failure cultivated institutional interrelationships, lack of motivation, lack of quality (which included a large number of responses identifying negative perceptions of self), and no responses. Chi-square analysis of the total responses by group revealed significant differences ($\chi 2$ [*df* 4, n = 763] = 13.971, p = .0074) in the patterns of responding. Subsequent scrutiny of the data

indicated there were clear differences in response patterns for one category: ability ($\chi 2$ [*df* 1] = 4.036, p = .0445). LD students generated more responses to this category than were expected. Another category, quality of life and work, approached significance ($\chi 2$ [*df* 1] = 3.759, p = .0525) and so a closer look at this category was conducted to see what analytic code(s) could be influencing the results. The largest analytic code, negative perceptions of self, was submitted to chi-square analysis and this code turned out to be significantly different in the total number of responses given by each group ($\chi 2$ [*df* 1] = 13.393, p = .0003). Students with LD generated more responses related to negative perceptions of self than did the other group.

Question 14: This question asked students to identify what they did when they were successful at learning. To determine whether there were differences in the total number of responses of the four combined categories (high motivation, quality, performance of scholastic skills, and no response) by group, chi-square analysis was conducted which indicated that there were significant differences ($\chi 2$ [*df* 3, n = 705] = 8.374, p = .0389) in the "no response" category ($\chi 2$ [*df* 1] = 7.263, p = .007). As in every case where the "no response" category showed significant differences, LD students had more codes than were expected.

Question 15: This question asked students what they did when they felt unsuccessful in learning. Six categories contributed to the total number of responses to determine differences in the patterns of responding using chi-square analysis: lack of motivation, personal issues interfered, quality was lacking, scholastic skills were not performed, support systems were not in place, and no response. The chi-square analysis revealed significant differences in the pattern of each group's total responses ($\chi 2$ [*df* 5, n = 577] = 27.765, p = .0001). Closer examination indicated that three categories demonstrated

different patterns of responding: personal issues ($\chi 2$ [*df* 1] = 10.26, *p* = .0014), scholastic skills were not performed ($\chi 2$ [*df* 1] = 7.849, *p* = .0051), and support systems were not in place ($\chi 2$ [*df* 1] = 6.079, *p* = .0137). LD students listed more than the expected number of responses in the "personal issues interfered" and "support systems not in place" categories. NLD students generated more responses than expected in the "scholastic skills were not performed" category.

Analyses of Total Responses for Each Question by Gender: Of the 11 questions analyzed for similarities among the total number of responses given to each question by males and by females, five questions showed no statistically significant differences using chi-square analysis. These results, considered to be estimations only, are presented in Table 4.

TABLE 4.

Chi-square Analyses Indicating Similarity of Response Patterns - Total Number of Category Responses by Gender

Question #	*df*	N	$\chi 2$	*p*
3	4	833	4.445	.3492
8	4	813	7.892	.0956
9	5	755	6.134	.2934
11	6	657	3.179	.7860
15	5	547	9.217	.1007

The six other questions showed significant differences in the overall responses and, therefore, are discussed separately.

Question 1: Chi-square analysis of the the total category responses by gender indicated significant differences existed among the categories ($\chi 2$ [*df* 5, n = 1394] = 19.851, *p* = .0013). These differences were found in two of the categories: background ($\chi 2$ [*df* 1] = 8.378, *p* = .0038), and no responses ($\chi 2$ [*df* 1] = 6.548, *p* = .0105). Males identified more "background" codes as

characterizing the student with good grades and had more "no response" codes than expected.

Question 2: Chi-square analysis for the total number of responses for this question regarding the characteristics of the low grade student revealed significant differences in the categories by gender ($\chi 2$ [*df* 5, n = 1079] = 23.616, p = .0003). Closer evaluation of these categories indicated that two categories showed significant differences: failure to cultivate institutional interrelationships ($\chi 2$ [*df* 1] = 12.436, p = .0004) and lack of motivation ($\chi 2$ [*df* 1] = 7.761, p = .0053). Females provided more than the expected number of responses to the "failure to cultivate institutional interrelationships" category, but males listed more than the expected number in the "lack of motivation" category. No differences were noted in relation to the number of positively phrased responses.

Question 4: Total responses by gender were submitted for chi-square analysis which revealed significant differences in the response patterns ($\chi 2$ [*df* 2, n = 850] = 9.179, p = .0102). Further chi-square analyses of individual categories indicated that significant differences occurred in the "change personal ways of behaving" category ($\chi 2$ [*df* 1] = 5.076, p = .0243). Males listed more than the expected number of responses to this category. No differences were noted in the "change task behaviors" and "no response" categories.

Question 5: Chi-square analysis of the total number of responses by gender indicated significant differences among the categories ($\chi 2$ [*df* 3, n = 709] = 12.998, p = .0046). Further analyses revealed that the differences were in the "no response" category ($\chi 2$ [*df* 1] = 11.473, p = .0007). More than the expected number of responses in this category were given by males. No differences were noted for the categories of: competency, personal concern, or student responsibility.

Question 6: Chi-square analysis to determine similarity of response patterns revealed significant differences (χ^2 [*df* 4, n = 744] = 13.667, p = .0084). Further analyses of each category indicated that differences occurred in the "no response" category (χ^2 [*df* 1] = 9.774, p = .0018) and that more than the expected number of responses were attributed to males.

Question 14: Chi-square analysis revealed significant differences in the total number of responses by gender (χ^2 [*df* 3, n = 707] = 13.555, p = .0036). Further scrutiny of the categories indicated that differences were noted in the "highly motivated" (χ^2 [*df* 1] = 6.619, p = .0101) and the "quality" categories (χ^2 [*df* 1] = 4.408, p = .0358). Males gave more than the expected number of responses to the "highly motivated" category. Females, on the other hand, gave more than the expected number of responses to the "quality" category.

Analyses of Total Responses for Each Question by PSI - University, Community College and Technical School Students: In looking at the similarities of response patterns by PSI, seven questions showed no differences in expected proportions of total responses according to the chi-square analyses. These figures, considered to be estimates, are presented in Table 5.

TABLE 5.

Chi-square Analyses Indicating Similarity of Response Patterns - Total Number of Responses by PSI

Question #	*df*	N	χ^2	p
1	10	1386	10.146	.4277
*2	10	1079	14.050	.1707
4	4	340	6.455	.1677
5	6	376	7.029	.7546
8	8	812	3.420	.7546
11	10	645	10.023	.5335
15	10	570	16.054	.0981

*No differences were noted between positive vs. negative response patterns.

For the questions where significant differences were noted, results are discussed separately for each question.

Question 3: Chi-square analysis of the total responses by PSI revealed significant differences in the patterns of responding (χ^2 [*df* 8, n = 824] = 23.462, p = .0028). Closer scrutiny identified one category as demonstrating statistically significant differences among PSI responses: experiential background (χ^2 [*df* 2] = 13.74, p = .001). University students provided more than the expected number of responses to this category. Students from both community colleges and technical schools gave fewer than the expected values.

Question 6: In this question, chi-square analysis of the total number of responses indicated that there were significant differences among the PSIs in frequency of responding (χ^2 [*df* 8, n = 824] = 26.762, p = .0008). Further analyses revealed that the differences were specific to two categories: a change in on-task behaviors (χ^2 [*df* 2] = 15.065, p = .0005) and no response (χ^2 [*df* 2] = 6.138, p = .0465). In the "change in on-task behaviors" category, university students gave more than the expected number of responses. Both community college students and technical students gave fewer than the expected number of responses to this category. In the "no response" category, the number of community college student codes were more than expected. University student codes were fewer than expected, and technical student codes were at the expected value. However, the chi-square value barely approached significance and so any real differences may be negligible.

Question 9: Significant differences among the total number of responses by PSI were revealed by chi-square analysis to this question (χ^2 [*df* 10, n = 755] = 19.539, p = .0339). A closer look at the data and subsequent chi-square analyses indicated that a difference occurred in the category "quality of life and work" but that the actual differences occurred in the analytic code described as

"negative perceptions of self" (χ^2 [*df* 2] = 6.548, p = .0379). Both community college and technical students gave more responses to this category than were expected. University students listed fewer responses than expected values indicated.

Question 14: Overall chi-square analysis of total responses by PSI indicated some significant difference in the pattern of responding (χ^2 [*df* 6, n = 698] = 13.077, p = .0418). However, scrutiny of the categories revealed no statistically significant differences. Minor fluctuations in the "highly motivated" category indicated that university students provided more responses and community college students provided fewer than expected. In the "quality" category, technical school students listed more responses than expected whereas university students and community college students listed close to the expected number of responses. In the "performs scholastic skills" category, university students and community college students provided fewer responses than expected. These differences in observed values and expected values, however, were not great enough to achieve statistical significance.

B. DISCUSSION OF RESULTS

(a) Emergent Themes for Research Question 1

All of the questions together provided for a wide variety of responses and categories for the identification of variables that influenced students with high and low grades. None of the categories or themes were beyond the types of variables mentioned in multiple research studies as factors affecting student performance. Borchardt (1989), in an exercise given to students entering her class for the first time, asks students to identify the successful student.

> This exercise, on the one hand, evokes successful characteristics, for example, being punctual, trying hard, sticking to the job, having

> a positive attitude; and, on the other hand, such harmful factors as too many outside activities, too many friends who encouraged "goofing off," procrastinating, too much time talking on the telephone, teachers who didn't care, and, yes, even getting in with the "wrong crowd" (p. 138).

As can be seen in comparing these responses to those in Appendix F, the responses have great similarity. Her question to her students is fairly close to two of the questions asked in this study. What was unique to this study was the number of different categories and frequency of responses of some of these variables as well as group and gender differences, in other words, the amount of detail. Almost all of the variables affecting student performance have been brought out in one study (see Appendix F for a listing of all the codes).

Most research in the area of academic achievement has focussed on reasons that students give for their performances as opposed to asking them specifically what factors affect that performance. Rotter (1966) proposed a one-dimensional classification scheme for performance based on perceptions of control (internal vs external). Attributional research (Weiner, 1971) identified four causes of achievement: ability, effort, task difficulty, and luck based on the two dimensions of causality (internal-external) and stability (stable-unstable). Cooper and Good (1983) identified twelve attributional categories from their research: ability, previous experience, acquired characteristics, typical effort, interest in the subject matter, immediate effort, attention, teacher, task, other students, family, and physiological processes.

Many of the themes identified in this study are congruent with the categories established by Cooper and Good. What differentiates the two studies is the amount of detail provided for each theme in the present study. As well, most large thematic groupings (major categories) indicated that control for performance was within the student: academic skill performance, interactive classroom behaviors, motivational issues, and quality concerns. The few

themes that were indicative of control being ascribed to external factors were minor categories generally described as background influences, family issues, teacher related concerns, and inherited ability. Therefore, the relationship of performance to self-efficacy appears validated in this study.

One of the themes that emerged as a strong indicator of student performance was the category, "cultivates institutional interrelationships." One of the largest groups in this category was "performs academic skills." While, for the most part, this research has not produced general principles for understanding the patterns of studying or the relative effectiveness of different study methods, it has verified the notion that much of the control for academic performance lies within the student. Students mentioned more specific study techniques when they were asked what they did to be successful than when they were asked what high grade students did to get these grades. However, there were indications that these students did not have a broad knowledge of different techniques available to them, at least, they did not mention a variety of methods.

The largest number of individual responses given for a single analytic code was "hard worker." It was the most frequently mentioned behavior in the motivation category when students were asked about the behaviors or characteristics of high grade students. Next to this response, students indicated that self-confidence plays an important role in academic achievement. Research has verified the important relationship between these two constructs (Burke, Hunt, & Bickford, 1985; Hansford & Hattie, 1982; Marsh, Byrne, & Shavelson, 1988; Thomas, Iventosh, & Rohwer, 1887) and the students in the study acknowledged the existence and importance of self-confidence, particularly as one of the descriptors of personality.

Some contradictory patterns of responding between questions was noted. In Question 1, student responses indicated that background and quality of life and work were major categories describing the student with high grades. However, these two categories became minor categories in the descriptions of the student with low grades in Question 2. Questions 8 and 9 were redundant in some ways. They repeated identical themes found in Questions 1 and 2. However, in Question 2, all responses referring to the performance of academic skills indicated a lack of performance or knowledge of these skills, whereas, in Question 9, some students indicated that these skills were performed.

In comparing Questions 14 and 15, student categories differed. When asked what they did when they felt unsuccessful in learning (Question 15), they mentioned interference of personal issues and lack of support. However, when asked what they did when they felt successful (Question 14), neither of these types of responses appeared. Although this research does not specifically address this issue, some intimations indicated that students attributed success to internal variables but attributed some aspect of failure to external variables. There were some indications of this in Questions 1, 2, 8 and 9, although they were not as clearly defined. Previous research has also indicated this as a pattern in successful versus unsuccessful student behaviors (see Thomas, Iventosh, & Rohwer, 1987, for a review of this literature).

An overview of the responses for Questions 1 and 8 versus 2 and 9 shows that students had much more difficulty identifying the behaviors of a student with low grades than they did for a student with high grades. In order to obtain high grades, there appeared to be definite or well defined intervening variables. However, with the low grade student, these variables appeared to be influenced by other variables which could be influenced by other variables, and so on. The only explanation the researcher has to offer for this situation is

through the formulation of a question that arises from a *Metalogue* written by Bateson (1972) discussing what is "tidy" and what is "not tidy":

> Daughter: Why do things get the way I say isn't tidy?
> Father: It's just because there are more ways which you call "untidy" than there are ways which you call "tidy" (p. 8).

Are there more ways for a student to achieve low grades (i.e., be unsuccessful) than there are for a student to achieve high grades?

In Question 5, students indicated that the instructor's competency and personality would help students to improve their grades. The categories mentioned have been validated by other research to identify teacher personality traits as they relate to instructor effectiveness and student ratings (Feldman, 1986; Marsh, 1981; Murray, 1975; Sherman & Blackburn, 1975; Tomasco, 1980). The characteristics that students in other studies have identified are: teacher affiliation, endurance, nurturance, definitiveness, changeability, leadership, lightheartedness and supportingness [sic].

This study does not look at the strength or degree of relationship between certain themes and other specific constructs as have many other studies in attribution, motivation, academic self-concept and academic achievement. It specifies individual themes as part of the identification of characteristics of students with high and low grades. While these performance indices provide a broader picture of the students in the study, they are limited in interpretability for two reasons: this was a select sample and overall patterns or combinations of responses were not established for every question. However, the comprehensive response analysis and high inter-rater reliability does provide validity for the themes.

(b) Analysis of the Results for Research Question 2

The reader is again cautioned that the chi-square analyses can be considered only rough estimates of similarities and differences.

Group Analysis: Overall patterns of responding between the groups showed no differences in five of the eleven questions when submitted to chi-square analysis. The other six questions showed significant differences in these patterns. In three of these, LD students had more unique responses than did the NLD group. In other words, they provided more responses that could not be grouped into a code or they had more responses that were not interpretable. They did not differ from the other group in the number of "no responses." This raises the issue of whether some of the LD students in postsecondary education know what successful patterns of academic behavior are. This could well be reflected in inappropriately directed motivation to complete educational goals (see Buchanan & Wolf, 1986; Kovach, Whyte, & Vosahlo, 1991b).

In five of the questions with differences in patterns of responding, LD students consistently mentioned the effects of external variables on performance: background, ability (inherited), personal issues relating to others and lack of support. NLD students, on the other hand, mentioned more behaviors under the student's control as influencing performance, such as those related to academic skills, interactive classroom behaviors and scholastic skills. Much of the research into "locus of control" issues with students with learning disabilities has indicated that these students are more externally controlled than internally controlled (Durrant, Cunningham, & Voelker, 1990; Rogers & Saklofske, 1985; Tollefson, Tracy, Johnsen, Borgers, Buenning, Farmer, & Barke, 1980). This study allowed them to identify the areas in which they were more externally controlled in the learning situation. As a result of this study, it may be prudent to look further at whether some students with learning

disabilities are more focussed internally on issues and whether this focus detracts from turning thoughts into behaviors (i.e., Are they acting upon these thoughts, ruminating, or simply being more introspective?). As Gerber, Ginsberg, and Reiff (1990) emphasized, successful LD adults turned thoughts into actions.

Gender Analysis: Differences in the patterns of responding were found in six of the eleven questions submitted to chi-square analysis. Males responded with more unique responses in three of the questions. Also, they tended to focus more on motivational aspects of performance than did the females in the study who focussed slightly more on specific behaviors and quality of life and work. Institutional and goal commitments, which are part of motivation, have been cited in the literature as having more of an influence on males (Anderson, 1988; Terenzini & Pascarella, 1980) than on females in the attainment of college degrees. In Question 1, they also responded with more background codes than expected. However, one of the analytic codes in the background category was ability or intelligence, which has been identified in previous research (Rosenholtz & Simpson, 1984) as one of the variables on which males rate themselves higher than do females.

PSI Analysis: Four questions showed significant differences in response patterns when PSIs were analyzed. University students indicated that background explained the differences between the high and low students' grades. Looker and McNutt (1989) cited background (parents' levels of education, parents' occupations and their influence of educational preferences for their children) as affecting educational attainment. University students also indicated that in order to improve grades, more changes in on-task behaviors were needed.

Students in community colleges and technical schools gave more negative self-perception responses to the question which asked what a student with low grades did to achieve these grades. For these two groups of students, it appears that the thoughts one holds about oneself are important to academic achievement, particularly for students who are receiving low grades.

One question, number 14, had a significant chi-square. But further investigation of this question indicated that there were fluctuations in each of the category responses, although none of the categories were significant on their own.

C. SUMMARY

This chapter focussed on the results of the study with an emphasis on themes and analyses of the thematic responses to Part II, the open-ended questionnaire.

Subsequent to the analysis on Part I of the Questionnaire, open-ended responses were coded for response patterns to identify categories which would describe the nature of the students' responses to each of the 11 questions on Part II of the questionnaire. Each category for each question was described in detail in this part of the Results section. Then patterns of similarity were identified for each question by group, gender, and postsecondary institution. Five questions showed significant differences in the total number of responses by group and gender. Four questions had significant differences in the total number of responses given by students in each of the PSIs. In one of these four questions, the differences were not clearly defined by the categories.

Discussion of the patterns and categories of responses indicated that many had been noted in previous research. However, the strength of the study lies in the comprehensiveness of the categorical responses and the reliability of

the coding. The above results have potential implications for education and researchers interested in students with and without learning difficulties. These implications will be discussed in the final chapter.

VII. CONCLUSIONS

A. SUMMARY OF THE STUDY

In recent years, there has been an emphasis in LD research on the adult student. A number of these individuals are choosing to attend postsecondary schools and are identifying themselves to student service providers as having learning disabilities. In order to provide appropriate and effective services, it is necessary to understand the nature of these students. The purpose of this study was to investigate the nature of these students and the way they see academic success and failure from a personal viewpoint so that, as educators and student service providers, we have a better understanding of them. First, a Self-Rating Scale was used to determine how the students rated themselves on a number of academic variables. Second, an open-ended questionnaire asked them to identify the components of academic achievement by describing students with low and high grades. Thus, the study used both quantitative and qualitative methodologies for data collection and analysis.

The sample consisted of 92 students with learning disabilities and 134 students without learning disabilities for comparison. The two groups were uneven in numbers of males and females responding. The LD group had significantly more males than females who responded. The NLD group was opposite in proportions of gender responses. The sample was made up of students from universities, community colleges and technical schools. They were similar in age, year of postsecondary program and number of students holding high school diplomas. They differed on reported high school grades, postsecondary grades, and family members with suspected learning disabilities.

The data related to the first three research questions were obtained from the Self-Rating Scale (Part I). The next two research questions were answered from the open-ended questionnaire (Part II). Quantitative data analyses were used in both parts of the study. Qualitative analysis was used only in the second part of the study.

The results of Part I identified response patterns among the 24 items that generally approached normality as well as the presence of four factors in the Self-Rating Scale: ability to learn, organization, ability (IQ), and adaptation. Comparisons of the factors by group, gender, PSI, high school grade categories, and PSI grade categories revealed some similarities and some differences in the categorical variables. No interaction effects were significant. On the "ability to learn" factor, two main effects were identified by group and by PSI grade category. LD students rated themselves significantly lower than NLD students on this factor. Comparisons of PSI grade categories indicated that all three category comparisons were significant: low vs medium, medium vs high, and low vs high. On the "organization" factor, significant differences occurred only in two grade category comparisons: low vs high and medium vs high. On the third factor, "ability(IQ)," gender differences were significant with males having higher ratings than females.

In Part II of the study, the open-ended questionnaire was first read and then coded for sorting categories which were general descriptions of the data in the questions. More specific groups of responses, analytic codes, were identified for each sorting code. A sample of 30 questionnaires was distributed to two raters to see if they could identify similar groupings of responses. All sorting codes were discussed with the raters after they had read the sample questionnaires. Changes were made to definitions of the sorting codes to clarify any ambiguities. Subsequently, inter-rater reliability turned out to be very high

on the analytic codes. The researcher then coded all the cases, checked the codes, and entered them into the computer for analysis.

Across the eleven questions that were coded for the study, a large number of sorting codes and an even larger number of analytic codes were identified. Sorting codes were divided into major and minor categories to indicate frequency of individuals responding. When comparisons were made on each of the total responses for the sorting codes or categories by group, gender and PSI, some interesting patterns emerged. These patterns were discussed in detail in the previous chapter. However, a summary of the patterns provides a confirmation of past research findings and the basis for further research.

LD students mentioned more external variables as influencing a student's performance than did the NLD group. They also listed more responses that were not suitable for inclusion into an analytic code, i.e., they were unique. This raises the question of whether some LD students in educational programs know appropriate combinations of academic behaviors for success and whether they are able to translate this knowledge into behaviors or actions. Piaget, in *The Biology of Behavior,* said something to this effect, "If you wish to learn, you must act." It also adds credence to previous research which indicates that some LD students are passive learners.

Gender differences indicated that males rated themselves higher on the "ability (IQ)" factor than did females. Analysis of the responses from Part II indicates that the students also consider it to be one of the factors influencing academic performance. Rosenholtz and Simpson (1984) looked at some of the interactions in school settings that might lead the formation of this kind of a belief. However, other research (Dweck, 1986) indicates that it is the belief in intelligence as a fixed quantity or a malleable quantity that makes the difference in persistence and self-concept in educational settings. The other finding in this

comparison was that males gave more unique responses than did females. To discover reasons for this pattern, further research or analysis of the existing data would have to be done.

Comparisons of themes by PSI indicated that all three groups have some different concepts about students with high grades and students with low grades. However, none of the comparisons showed significance when they were analyzed by individual category rather than by total responses. Although these differences may exist, this study did not identify differences except in the following areas: university students identified more on-task behaviors as a way to raise grades than did students in the other two PSIs. The most interesting finding was that more community college students and more technical students than were expected identified negative self-perceptions as having a detrimental effect on academic achievement than did university students. Further investigation would be required to clarify the reasons for this finding, although it may be a reflection of society's current attitudes to education that is not university education.

B. IMPLICATIONS OF THE STUDY

Part I of the study raised questions about how students with learning disabilities actually viewed themselves in academic situations. Although they differed from the NLD group on the "ability to learn" factor, they responded in a similar fashion on the remaining three factors: (a) organization, (b) ability [IQ], and (c) adaptability. It would be interesting to know why the only factor that differed was the "ability to learn" factor. The explanations for this phenomenon may be related to a combination of self-concept issues, self-fulfilling prophesies, or the scale itself.

In Part II of the study, LD students identified more external variables as influencing student performance. As well, LD students also showed more of a tendency to respond in unique ways when identifying appropriate academic behaviors. The implications for this knowledge for student service providers is that they must teach and encourage these students to act on appropriate behaviors, rather than to think too much about them. Cognitive psychology focuses on translating thoughts into actions and this may be a particularly successful approach to counselling these students as it has been to strategy instruction.

When education has become such an important issue personally for the students involved, politically for employability and skill enhancement, and educationally for effective programming, educators must understand the types of programs that lead to success without sacrificing quality of programming. To do this, we must understand students. Understanding students leads to enhancement of educational programs when these programs are designed with student needs in mind. As beliefs and attitudes toward education change with the changing times, educators must keep up with these changes in order to maintain a standard of program excellence.

Teaching students how to learn is every bit as important as what to learn. We may have forgotten this in our attempts to make students more knowledgeable about the world around them or more skilled in particular areas. It is no longer possible to learn everything about the world we live in or about a particular technology; all is changing quickly. What is possible is learning "how to learn," as new information is continually being presented relevant to our daily functioning and satisfaction in our work.

C. LIMITATIONS OF THE STUDY

The two groups that assisted with the study, LD and NLD adult students, were not randomly selected; the selection was dependent on access to students with learning disabilities. Nor were the students considered to be representative of all the students at the participating postsecondary institutions. Therefore, the results cannot be generalized to other groups as sample selection bias may have influenced the results.

The students with learning disabilities were treated as a homogeneous group and were not assessed by the researcher. Therefore, differences of degree and variation in the definition and assessment of learning disabilities may exist (see Appendix G for an outline of various assessment batteries used by the PSIs involved in the study).

The Self-Rating Scale is not a formalized assessment tool. It was constructed for purposes of this study and empirical techniques in test construction were not used.

The chi-square analysis in Part II of the study provides only a crude measure of differences in the patterns of responding between the groups (LD, NLD), between genders (M, F), and among PSIs (universities, community colleges, technical schools). This should be kept in mind when interpreting the results within and beyond this study.

D. PERSONAL REFLECTIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Although the findings in this study are not generalizable beyond the sample, the study does bring together a large number of variables that affect student performance. Because of this, the researcher is of the belief that other

studies would identify similar variables. What may change would be the frequency of occurrence and the patterns of responding.

Since the Self-Rating Scale is not a standardized questionnaire, but rather a tool designed for this study, it is limited in its interpretation. Further research would be needed to determine its use as a rating scale. Similar rating scales for use with postsecondary students are not available at the present. Rating scales of academic ability are available for school-aged students but they have limited applicability to adult student groups.

Analysis of differences by grade categories on total sorting codes was not conducted in this study. This kind of analysis may shed some further light on the pattern of student responding, but for now, it has not been done. A great deal of work has yet to be completed. There are additional questions to be analyzed from Part II of the study. Selection of a few cases from the larger sample would provide focus for looking at combinations of responses. Some issues raised by the results of this study warrant further investigation.

As well, other concerns for future study have arisen. Students demonstrated a paucity of knowledge about various kinds of learning strategies. Even though the questionnaire was not designed to assess the strategy knowledge students possess, few strategies were even mentioned. This should be looked at in future research because student success also hinges on knowing different ways to study when one way is not successful. As educators, we may have to focus on teaching learning strategies as ways to enhance student learning and performance rather than just focussing on course content.

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APPENDIX A: STUDENT COVER LETTER

Dear Student,

Thank you for agreeing to participate in this very important research into the nature of adult learning, ideas about learning, and ability. To date, there has been very little research done which tells us how adults view ability. It is important for us as educators to know this kind of information so that we can more equitably design our post-secondary programs to meet the needs of a growing population of people who wish to improve their levels of education. This project wishes to look at two important groups of adult learners, those who have learning disabilities and those who do not.

In each of your packages you will find the following forms:

1. an Information Form,
2. Part I - THE SELF-RATING SCALE,
3. Part II - THE STUDENT QUESTIONNAIRE, and
4. a Request for Research Results.

If you are missing any of these forms, please ask for a copy of them.

Take the forms home or complete them at the place in which they were given to you. All of the forms together should take you about an hour to complete. I understand that this may seem like a very long time to fill out forms, but I do appreciate your efforts and so may many future adult students. Do the forms as quickly and efficiently as you can. Try not to spend a great deal of time in deep thought as your immediate response is often the most reflective of your ideas and beliefs about the subject. The only thing I do ask when you are working quickly is to make your writing or printing as readable as possible.

Turn the forms back in as quickly as possible and thank you again and again.

Yours truly,

Karen E. Kovach, Researcher

APPENDIX B: STUDENT COVER LETTER (FOR STUDENTS USING A TAPE RECORDER)

Dear Student,

Thank you for agreeing to participate in this very important research project which looks at the nature of adult learning, ideas about learning, and ability. To date, there has been very little research done that tells us how adults view ability. It is important for us as educators to know this kind of information so that we can more equitably design our post-secondary programs to meet the needs of a growing population of adults who wish to improve their levels of education. This project wishes to obtain the ideas of two important groups of adult learners: those who have a learning disability and those who do not.

If you are a student who has a learning disability and have chosen to participate in this study using a tape recorder, you should find the following items in this package:

1) an Information Form,
2) Part I: The Self-Rating Scale
3) Part II: The Student Questionnaire (**printed version**),
4) a blank tape for recording your answers to Part II: The Student Questionnaire, and
5) the Request for Research Results.

If any of these are missing in your package, please ask for them.

Use the printed forms for noting your answers on the Information Form, Part I: The Self-Rating Scale, and the Request for Research Results if you wish to obtain the final results of the study. Use the tape recorder for recording your answers to Part II: The Student Questionnaire.

You may record your answers for the Questionnaire directly onto the tape using the **record button**. First read the question number and the question onto the tape. Then answer the question directly onto the tape. Be careful not to miss any of the questions.

Do not put your name anywhere on the forms except for the Request for Research Results if you wish to have the final results.

The Request for Research Results should be handed back separately so that your anonymity is guaranteed.

Take the forms home or complete them at the place in which they were given to you. All of the forms together should take you about an hour and a half to complete. I understand that this may seem like a very long time, but I do appreciate your efforts and so may many future adult students. Do the forms as quickly and efficiently as you can. Try not to spend a great deal of time in deep thought as your immediate response is often the most reflective of your ideas and beliefs about the subject. The only thing I do ask when you are working quickly is to make your writing and recording as clear as possible.

Turn the forms back in as quickly as possible and thank you again and again.

Yours truly,

Karen E. Kovach, Researcher

APPENDIX C: QUESTIONNAIRE

INFORMATION FORM FOR STUDENTS

Please complete this form before you begin The Self-Rating Scale and The Student Questionnaire. Be as accurate as you can. If you would like to add any information to this page, use the bottom part of the sheet to do so.

Date: _____

Age: _____ Birthdate: Month _____ Day _____ Year _____

Gender: Male _____ Female _____

Do you have a High School Diploma? Yes _____ No _____

(If "no," what was the last grade you completed? _____)

Give your high school average for the last grade you completed: _____

Name of Post-Secondary Institution you are presently attending:

_____

Name the program or faculty you are in: _____

What year of your program are you in?

first _____

second _____

third _____

fourth _____

other _____ (explain _____)

Are you: a full-time student _____

a part-time student _____

Have you ever been assessed for a learning disability? Yes _____ No _____

Have you ever been diagnosed as having a learning disability? Yes ___No ___

Has anyone in your family ever been suspected of having a learning disability?

Yes _____ No _____

(If "yes," then circle the family member: Mother, Father, Sister, Brother, Relative)

PART I:

SELF-RATING SCALE OF ABILITIES

I am trying to gather information about how students view their abilities in formal learning (school, college, university) settings.

Be as honest as you can. Your answers are important, so do not leave any answers out. If you do not understand a question, try to answer it but place a question mark (?) next to it. Work through the items in the order they are presented. To keep your answers confidential, do not put your name anywhere on the forms.

INSTRUCTIONS

On the following pages are several scales on which you are asked to rate yourself in areas related to academic and personal competencies. There are no right or wrong answers. CAREFULLY rate yourself on the scales as you feel right now in your life. Be as accurate as you can.

Circle a number from 1 to 7. As a guide to the numbers on the scales, you can use the following for general interpretation:

CIRCLE: **1** if you rate yourself **low** on the scale
2 if you rate yourself **moderately low** on the scale
3 if you rate yourself **slightly low**
4 if you rate yourself **neutral**
5 if you rate yourself **slightly high**
6 if you rate yourself **moderately high**
7 if you rate yourself **high** on the scale

1. How would you rate your level of self-confidence in academic learning situations compared to other students you know?

   low 1 2 3 4 5 6 7 high

2. How would you rate your level of overall ability to do academic work in comparison to other students you know?

   low 1 2 3 4 5 6 7 high

3. How would you rate your level of intelligence in comparison to other students you know?

   low 1 2 3 4 5 6 7 high

4. How would you rate your ability to plan an academic work schedule in comparison to other students you know?

low 1 2 3 4 5 6 7 high

5. How would you rate your level of personal satisfaction with your academic work at this technical school/college/university?

low 1 2 3 4 5 6 7 high

6. How would you rate your level of motivation to succeed in your academic endeavors compared to other students you know?

low 1 2 3 4 5 6 7 high

7. How would you rate your level of persistence in completing your academic work in comparison to other students you know?

low 1 2 3 4 5 6 7 high

8. How would you rate the amount of control you feel you have over your own learning?

low 1 2 3 4 5 6 7 high

9. How would you rate the amount of time you are able to spend on learning tasks in comparison to other students you know?

low 1 2 3 4 5 6 7 high

10. How would you rate your level of ability to learn difficult academic concepts compared to other students you know?

low 1 2 3 4 5 6 7 high

11. How would you rate the speed at which you learn new material in comparison to other students you know?

slow 1 2 3 4 5 6 7 fast

12. How would you rate your own level of general or factual knowledge in comparison to other students you know?

low 1 2 3 4 5 6 7 high

13. How would you rate your own level of knowledge about the different ways there are to learn material and to study in comparison to other students you know?

low 1 2 3 4 5 6 7 high

14. How would you rate your own level of awareness of the methods that you use to study and learn new information.

low 1 2 3 4 5 6 7 high

15. How would you rate the ease with which you accept new ideas and new ways of doing things in comparison to other students you know?

not easy 1 2 3 4 5 6 7 very easy

16. How would you rate your organizational skills on assignments and for studying in comparison to other students that you know?

low 1 2 3 4 5 6 7 high

17. How would you rate your ability to apply material you have learned in school to the outside world in comparison to other students you know?

low 1 2 3 4 5 6 7 high

18. How would you rate your ability to express yourself through the written or spoken word in comparison to other students you know?

low 1 2 3 4 5 6 7 high

19. How would you rate your ability to memorize or remember academic information from your instructor in comparison to other students you know?

low 1 2 3 4 5 6 7 high

20. How would you rate the relationship between grades and a student's intelligence at your school?

low 1 2 3 4 5 6 7 high

21. How would you rate the amount of hard work that you have to do to learn in comparison to other students that you know?

low 1 2 3 4 5 6 7 high

22. How would you rate the amount of outside interference you generally have when studying in comparison to other students you know?

low 1 2 3 4 5 6 7 high

23. How would you rate your level of intelligence in comparison to the general population?

low 1 2 3 4 5 6 7 high

24. How would you rate your own flexibility in adapting to new situations in the learning environment?

low 1 2 3 4 5 6 7 high

PART II:

STUDENT QUESTIONNAIRE

Answer the following questions by giving as much accurate information as you possibly can. Your responses are very important to research into educational issues. Please answer **all** of the questions. Use point form if you feel you are able to express your ideas clearly in that format.

Imagine a classroom that is filled with students. In that classroom are two students that you know. One of the students has high grades and the other has low grades. Try and picture the two students as clearly in your mind as you can before you begin answering the questions.

1. List as many of the qualities, characteristics or traits that you can about the student who has high grades:

2. List as many of the qualities, characteristics or traits that you can about the student who has low grades.

3. List as many things as you can that you think would explain the differences in the two students' grades. Feel free to make any assumptions that you like about the nature of tho students.

4. What kinds of things could the student with the low grades do to raise the marks?

5. What kinds of things could the instructor do to help the student with low grades raise the marks?

6. What sorts of things could contribute to the student who presently has high grades receiving lower grades?

*7. The instructor in the class gives the students a difficult assignment.

a) What kinds of feelings or reactions do you think the student with high marks has as a result of this assignment?

b) What kinds of feelings or reactions do you think the student with lower grades has as a result of this assignment?

8. What kinds of things does the student with the high grades do to get these grades?

9. What kinds of things does the student with the low grades do or not do to get the low grades?

*10. How do you think these two students would differ in their opinions of the instructor?

Now, reflect on your own experiences as a student.

11. Thinking back on your experiences of being a student, what recent information has given you a broader perspective on what it means to be a better student?

*12. Thinking back on your experiences as a student, what do you do as a student now that is the same as when you were in grade school?

*13. What kinds of information that you are now aware of could have been given to you in your grade school years (grades 1 to 12) and would have helped you as a student?

14. When you felt successful in learning, what techniques did you use that contributed to this success?

15. When you felt unsuccessful in learning, what techniques did you use that you think lead to your being unsuccessful?

*16. What do you value most about an education?

*17. What kinds of things do you like most about learning?

Thank you again. Many of these questions are not easily answered and your efforts are appreciated.

APPENDIX D: REQUEST FOR RESEARCH RESULTS

REQUEST FOR RESEARCH RESULTS

If you have participated in the research as one of the **subjects** in this project and wish to have further information upon completion of the study, please fill out the following form. You may return it separate from your other forms to the individual(s)/administrator(s) who provided you with The Self-Rating Scale and The Student Questionnaire.

If you have been one of the **administrators** and wish to obtain the final results of the study, fill out this form.

I wish further information at the end of this study:

Name: _____

Permanent Address: _____

_____

_____

Postal Code: _____

APPENDIX E: ADMINISTRATOR PACKAGE

Dear

Thank you for agreeing to help distribute and collect my research forms from students. I greatly appreciate your cooperation and your time in helping me to complete my research. I feel this research is necessary and valuable in that it will help provide information into the perceptions that students have regarding the nature of academic ability.

My PhD program is being conducted at the University of Alberta under the supervision of Dr. Len Stewin and has passed the Ethics Review Committee. The dissertation is titled, "Perceptions of Ability: Adults With Learning Disabilities versus Adults Without Learning Disabilities in Post-Secondary Institutions." The concept behind the work is to identify what students perceive as academic ability, both in themselves and in a more general or global nature. The two groups of adult learners that I am most interested in are the students with learning disabilities and the students without learning disabilities. If you have worked with both groups, you will have noticed many similarities as well as differences. I would like to know, through this research, whether the similarities and differences are reflected in the way students perceive themselves and others as learners. Even more important to the study is the identification of the nature of the similarities and differences as well as a definition of what students perceive ability to be.

Some of you will be receiving the research questionnaires for both students with learning disabilities and students without learning disabilities. Others will be receiving forms for only one of these groups. Please refer to the Package Information Sheets to make sure you have the number of forms that we had discussed. A separate sheet of Instructions For Administrators is also included.

If you have any questions after going through your materials, please do not hesitate to call me collect in the evenings at (403) 433-1035 or at 492-3381 during the day time (unfortunately, I cannot accept collect calls at my work number, but will reimburse you if this is the only time you have available to call). In all the materials and instructions, I have referred to you as "Administrators."

Yours truly,

Karen E. Kovach, Researcher

PACKAGE INFORMATION SHEET

For Non-Learning Disabled Students:

Copies of the research information which includes: a cover letter to the student, an information sheet for students, Part I: The Self-Rating Scale of Abilities, Part II: The Student Questionnaire, and a Research Results Request form all stapled together.

_____ number requested
_____ total number included

For Learning Disabled Students:

Copies of the research information which includes: a cover letter to the students, an information form for students, Part I: The Self-Rating Scale of Abilities, Part II: The Student Questionnaire, and a Research Results Request form (all stapled together).

_____ number requested
_____ total number included

A **taped** version of of the complete research questionnaire so that students may listen to the questions while answering them on paper.

one included with every package

A blank tape for LD students to record their answers to Part II: Student Questionnaire.

_____ total number included

In each case except for the blank tape and the complete taped version, I have included more than the number you have requested in case you need them.

For the administrators to fill out:

_____ a copy of the Request For Research Results form

For returning the materials, courier envelopes or instructions have been provided.

INSTRUCTIONS FOR ADMINISTRATORS

The students may take all of the forms home to fill them out. However, they should not use any reference materials to answer the questions. The questions ask for opinions, not facts or textual information. All of the forms together take about one hour to complete except for the taped version for adults with learning disabilities. This version will take slightly longer to complete.

Keep track of which students have taken out the forms and which students have returned them as the number of learning disabled adults and the number of non-learning disabled adults has to match from each post-secondary institution. If possible, select students who have completed high school diplomas. Hound the students gently to get the forms back. Once you have distributed the forms, do not let the students keep them too long. Have them returned as quickly as possible. Do not make this part of any class assignment. Students should be free to choose whether or not they wish to take part in the research.

In some cases, the adults with learning disabilities may need access to a tape recorder and I would appreciate it if you could provide one for them or make sure they know where they can access a tape recorder in order to complete the forms. A complete version of the instructions and the questions are on tape for students to follow along while answering on the printed materials. Let the LD students know that this is available to them. A blank tape is also available for Part II: Student Questionnaire if there are any learning disabled students who wish to record their answers.

Be sure to fill out your own form and include it with the materials you are returning to me if you wish to have a copy of the results. The form I refer to is the "Request for Research Results."

I would like to have all of the forms back by the middle of November so that I can start compiling the information.

Thanks again for all your assistance. If you need to send any information to me, my work address is printed on my business card and my telephone numbers are contained in your letter.

LIST OF ALL MATERIALS INCLUDED IN THIS PACKAGE:

1. Cover letter (for all administrators)

2. Package Information Sheet (for all administrators)

3. Instructions for Administrators

4. Request For Research Results (for all administrators)

5. For students:
    a. a cover letter
    b. Information Form For Students
    c. Part I: Self-Rating Scale of Abilities
    d. Part II: Student Questionnaire (**printed** version in **all** packages)
    e. a Request for Research Results (which should be handed in separately from the rest of the student information)
    g. a taped version of the complete research questionnaire for students with learning disabilities to listen to while answering on the printed version
    e. a blank tape for LD students to record their answers to Part II: Student Questionnaire (these are complete packages which are sealed in brown envelopes)

6. Courier envelopes or instructions for administrators to return the materials.

APPENDIX F: CODES

Question 1

List as many of the qualities, characteristics or traits that you can about the student who has high grades.

Sorting Codes - First Level

Background (B) - The students' backgrounds (past and present) influence their performance in an academic situation. This background influence can be anything from an inherited ability, to an environment that supports learning, to family history and relationships, and socioeconomic status.

Institutional Interrelationships (II) - These are behaviors that are related to the educational/classroom situation, the tasks performed in order to meet course/class requirements, the willingness to seek assistance to get the work done, focusing on the school-related task, communicating ideas, going "that extra mile" by doing more than is required, and performing the above tasks on a regular basis.

Motivation (M) - The student is motivated to achieve. Motivation can be demonstrated through: interest in school, caring about school, is willing to put in the effort/work, has a definite set of goals, and considers education a priority. Studies have emphasized this as one of the most important components of academic achievement.

Personal (P) - Those dimensions related to the student's individual private person such as appearance, maturity, stable/unstable personality, and self-concept (which is related to a stable personality but is separated out because of its apparent importance as indicated by the number of responses - it is one of the most frequently listed attributes).

Quality (Q) - The student's thoughts and behaviors are mentioned in terms of a "quality" of existence rather than a "quantity."

Analytic Codes - Second Level

BACKGROUND CODES (B)

1. AB • the student has the natural ability (rather than skill) to perform a task (this natural ability is frequently implied by the response rather than always directly stated). As well, "ease of learning" is included under this code.
   e.g.: has a good memory
   easy learner

2. ENV • the student's environment is conducive to learning (usually stated generally). The environment may be supportive of the student's educational goals.
   e.g.: has a quiet place to study

no children (to distract)

3. HIST • the historical aspect of the family of origin is mentioned usually in the context of raising children, guiding them, supporting them or influencing them
   e.g.: parents encouraged reading at home

4. IQ • ability - the student is intelligent, smart, bright (and it is implied that this is inherited intelligence rather than a learned skill or an ability)
   e.g.: intelligent, keen mind

5. SES • socioeconomic status - a social class or category of income earnings is identified
   e.g.: rich

INSTITUTIONAL INTERRELATIONSHIP CODES (II)

6. ACA • academic skills - the student is able to perform or does perform certain tasks required by the demands of the course (these may take place outside of the classroom situation) such as:
   (a) apply knowledge
      e.g.: applies their knowledge
   (b) a general reference to academic skill performance, such as "studies"
      e.g.: studies
   (c) is able to process information
      e.g.: knows how to find the important points
   (d) has knowledge about the course/subject
      e.g.: knowledgeable in her information
   (e) has memorization skills. "Has a good memory" is coded under AB codes.
      e.g.: memorizes
   (f) can organize
      e.g.: organized
   (g) is prepared for the class by doing assigned work: assignments, readings, written assignments
      e.g.: does assignments before the deadline
   (h) uses resources available, uses the library
      e.g.: uses resources available
   (i) can read and write
      e.g.: able to read
   (j) has study skills
      e.g.: knows how to study
   (k) reviews. "Regular review" is coded under REG codes.
      e.g.: reviews notes
   (l) utilizes specific techniques to get the work done
      e.g.: visualizes the information
   (m) thinks about the work or subject
      e.g.: analyzes their information
   (n) uses time management
      e.g.: sets schedules and can stick to them
   (o) understands, seeks understanding
      e.g.: understands most things

7. ACT • Interactive in the class. The student is active in the class in that he/she appears to participate in the activities of the class.
   (a) attends classes (may be punctual)
      e.g.: attends classes
   (b) pays attention to the instructor
      e.g.: pays attention
   (c) relates to the instructor (may be synonymous with "brown nosing")
      e.g.: gets to know the instructor
   (d) receives and/or utilizes feedback
      e.g.: gets positive feedback which they can do something with
   (e) a general reference to doing something in the class that is course related
      e.g.: writes assignments down
   (f) listens to the lecture/instructor
      e.g.: listens
   (g) takes notes
      e.g.: takes notes
   (h) participates in the class (gets involved in class discussions)
      e.g.: outspoken in class
   (i) asks and/or answers questions
      e.g.: asks questions if having a problem
   (j) sits at the front of the class
      e.g.: sits toward the front of the class
   (k) talks to other students and the instructor regarding the course
      e.g.: talks to the professor about the course

8. CAT • concentration, attention and focus - student is able to concentrate, pay attention to or focus on the work at hand without being distracted (this is usually stated in a general manner, if the response indicates "attention to the lecture(r)," code as ACT)
   e.g.: works without distractions

9. COMM • communication skills - the student is able to communicate, is able to get ideas across, is able to express her/himself clearly through speaking or writing
   e.g.: can express themselves in class or in writing

10. DOM • do more - the student does more than the required work, does extra work or extra reading
   e.g.: reads related readings

11. HP • help - seeks help or assistance if needed, either from other students, tutors or the professor (code as HP if the response indicates that the student seeks "help" from the instructor and the word "help" is specifically stated)
   e.g.: ask for help if they need it

12. REG • regular - the student performs behaviors regularly (generally) or may perform an ACA or an ACT code regularly, continuously, all the time, always, often, frequently (the focus here is on repeated and continual performance)

(a) general performance that is regular
e.g.: works on courses regularly
(b) performs an academic skill (ACA) regularly
e.g.: reviews regularly
(c) performs an interactive class behavior (ACT) regularly
e.g.: attends class regularly

13. TIME • the student spends the time or takes the time to do the work (not "manages time" which is an ACA code), the focus here is that "time" spent on task is important
e.g.: takes the time to do the work

MOTIVATION CODES (M)

14. MOT • motivation, motivated. Motivation refers to "the dynamics of behavior, the processes of initiating, sustaining and directing activities" (Coon, p. 285).
(a) general motivation mentioned
e.g.: motivated
(b) cares about studies, is interested, conscientious, dedicated, has the desire to learn, is curious
e.g.: dedicated
(c) effort - puts in the effort, willing to work hard, determined, applies themselves to their studies
e.g.: is a hard worker
(d) expectations - the student has set of expectations which motivates him/her, there is external pressure to perform to a certain standard
e.g.: is expected to have high marks, no choice about it
(e) has goals, is ambitious, competitive, achievement oriented
e.g.: competes to achieve the highest marks
(f) likes/enjoys what they are doing, likes/enjoys learning, eager and enthusiastic about learning
e.g.: someone who enjoys school
(g) persistent - persists in their work, is tenacious, consistent and studious
e.g.: persistent

15. PRTY • priority - education is a priority and takes precedence over other activities, the student may "sacrifice" in order to make educational activities a priority, no outside interferences are allowed or tolerated, education is for advancement purposes
e.g.: education is a priority

PERSONAL CODES (P)

16. APP • appearance - a descriptive word or phrase about the outer appearance of the student
e.g.: well groomed

17. MA • mature, responsible, self-disciplined, realistic
e.g.: mature

18. PS • personality stable

This code refers to one of Eysenck's dimensions of personality from his theory of personality (there are three dimensions: Introversion-Extroversion, Neuroticism, and Psychoticism; see Pervin, 1980, p. 240). The dimension referred to in this code is called the "Neuroticism" dimension and refers to stability and instability. The two personality types classified under the stability factor are the phlegmatic and the sanguine personality types.
(a) the phlegmatic personality is characterized by the following traits:
passive, careful, thoughtful, peaceful, controlled, reliable, even-tempered and calm.
e.g.: inaccessive emotions over marks
(b) the sanguine personality is characterized by the following traits:
sociable, outgoing, talkative, responsive, optimistic, easygoing, lively, carefree, and leadership.
e.g.: relaxed in life
*Don't forget that there are a number of synonyms associated with each of the personality types! This seemed the only viable way to categorize a large number of descriptions of students' personalities parsimoniously.
You do not need to categorize into the two different personality types, just the PS code.

19. PUN • personality unstable
This is the other half of Eysenck's "Neuroticism" dimension. The two types of personality considered as unstable are the melancholic and the choleric personality types.
(a) the melancholic type is characterized by the following traits:
moody, anxious, rigid, sober, pessimistic, reserved, unsociable, quiet
e.g.: serious about things
(b) the choleric type is characterized by the following traits:
touchy, restless, aggressive, excitable, changeable, impulsive, active
e.g.: socially dumb
(Again, don't forget those wonderful synonyms!)
This code could also be called the NERD code as frequently the characteristics included along with the student's appearance would imply what many students refer to as a "nerd."
You do not need to decide on the personality type, just the PUN code.

20. SC • self-concept or self-confidence is present, self-esteem, likes self, assertive, sense of control and self-knowledge. This characteristic falls under the Stability dimension of the PS code. However, since it was a frequent response, it was singled out as a separate code.
e.g.: feels good about self

QUALITY CODES (Q)

21. ATT • attitude - the student has positive attitude toward education or any of its components
e.g.: has a good attitude about school

22. BAL • balance - maintains a balance in life activities: school work, social activities, physical activities, health related activities

e.g.: has time for other aspects of life

23. NEAT • neat is stated, sometimes generally, and is presumed to indicate that work is neat, not appearance (neat appearance is coded under APP)
e.g.: neat worker

24. QUAL • quality - refers to quality of work and is usually mentioned in conjunction with ACA, ACT and COMM codes. Some words indicating that "quality" is present are: good, efficient, well, proper, does the best they can
(a) quality general
e.g.: the student does her best
(b) the student performs an academic skill and in the performance, quality is acknowledged
e.g.: can organize time well
(c) the students performs well interactively in the classroom and the quality is acknowledged
e.g.: good listener
(d) the student has good communication skills
e.g.: is able to speak well

Other Codes

25. NC • no code - does not answer the question, does not make sense, does not have a code, cannot interpret the meaning, there are not enough responses of this type to warrant a separate code in this question

26. NR • no response - The student did not put down any responses to the question. It has been left blank.

Question 2

List as many of the qualities, characteristics or traits that you can about the student who has low grades?

Sorting Codes - First Level

Background (B) - The students' backgrounds (both past and present) outside of the educational system influence their performance in the academic situation. This background influence can be either positive or negative and usually refers to ability, supportive/unsupportive environments, family history, relationships, and socioeconomic status.

Institutional Interrelationships (II) - These are behaviors that are related to the educational/classroom situation and the tasks that are performed in order to meet course/class requirements. It is also an indication of the degree of compatibility between the student and the institution.

Motivation (M) - The student, in order to achieve, must be motivated to do so. Motivation can be demonstrated through: interest in school, caring about school, is willing to put in the effort/work, having a definite set of goals, and considering education a priority. Studies have emphasized this as one of the most important components of academic achievement.

Personal (P) - The dimensions which are related to student's private person such as appearance, personality and self-concept.

Quality (Q) - The students' thoughts an behaviors are mentioned in terms of "lack of quality" of existence or daily life. In this question, quality is a negative concept.

Analytic or Second Level Codes

For second level codes: most of the responses are "negative" responses. However, not all of them are. To complicate coding matters even further, some responses indicate an "over abundance" of a quality. Therefore, some codes will carry a plus (+) sign (indicating an over abundance, more than, or extra), a minus (-) sign (indicating the absence of), or no sign at all (indicating the presence of the quality).

BACKGROUND CODES (B)

1. AB • ability - student has a natural ability (rather than skill) to perform a task (this ability is frequently implied by the response rather than directly stated), is creative, talented. As well, "ease of learning" is included under this code.
   e.g.: easy learner

2. AB- • lacks a natural ability to learn, learning problems exist, or learning does not come easy whether reading or studying

e.g.: they may not catch onto new ideas
• problems with learning; have a learning disability
e.g.: they may have ... unrecognized learning difficulties

3. ENV- • environment is **not** conducive to academic learning (usually this is a general statement). The environment is not supportive of the student's educational goals.
   e.g.: too noisy at home to study

4. HIST- • historical aspect of the family of origin was **not** supportive in the role of raising children, of enhancing their learning, or influencing them positively
   e.g.: parents did not read to child so he/she is behind in reading

5. SES- • socioeconomic status - in this question the response indicates a lower socioeconomic group or a lower income group
   e.g.: poor

INSTITUTIONAL INTERRELATIONSHIP CODES (II)

6. ACA (I) • academic skills - the student **performs** certain tasks required by the demands of the course (these may take place outside of the classroom situation) such as:
   (a) apply knowledge
   (b) a general reference to academic skill performance (such as "studies")
   (c) is able to process information
   (d) has knowledge about the course/subject
   (e) has memorization skills
   (f) can organize
   (g) is prepared for the class by doing assigned work (assignments, readings, written assignments)
   (h) uses resources available
   (i) can read and write
   (j) has study skills
   (k) reviews
   (l) utilizes specific techniques to get the work done
   (m) thinks about the work or subject
   (n) uses time management
   (o) understands, seeks understanding

See Question #1 for examples of each of these ACA codes

7. ACA- • academic skills - the student does **not perform** academic skill tasks:
   (a) does not apply knowledge
   (b) generally does not use academic skills
   (c) does not use information processing techniques
      e.g.: they pick assignment topics for that could be considered 'vague' and for which there is little or no information
   (d) lacks knowledge about the course/subject
   (e) does not memorize
   (f) cannot organize
   (g) is not prepared for class, does not do homework, assignments, readings

(h) does not use available resources
e.g.: does not use the library
(i) does not engage in reading or writing
(j) does not have study skills
e.g.: does not know how to study
(k) does not review
(l) a specific technique is mentioned and the student does not or does not know how to use the technique
(m) does not spend think about the course material
(n) does not use time management techniques, procrastinates, crams for exams
(o) does not understand or seek to understand the material in the course (this is not the same as having problems in the course)

8. ACT • Interactive in the class
(a) attends classes (may be punctual)
(b) pays attention to the instructor
(c) relates to the instructor (may be synonymous with "brown nosing")
(d) receives and/or utilizes feedback
(e) a general reference to doing something in the class
(f) listens to the lecture/instructor
(g) takes notes
(h) participates in the class (gets involved in class discussions)
(i) asks and/or answers questions
(j) sits at the front of the class
(k) talks to other students and the instructor
See Question #1 for examples of each of these ACT codes.

9. ACT- • the student is not interactive in the class
(a) skips classes, does not attend classes
(b) does not pay attention to the lecture(r)
e.g.: daydreamer
(c) does not get to know the instructor
(d) does not utilize feedback about the course
(e) is generally not interactive in the class
(f) does not listen to the lecture(r)
(g) does not take notes
(h) does not participate in class or get involved in class discussions
(i) does not ask or answer questions
(j) sits at the back of the class
(k) talks or acts in a disruptive manner in the class
e.g.: the class clown

10. CAT- • concentration, attention and focus - student is **not** able to concentrate, pay attention to or focus on the work at hand without being distracted (this is usually stated in a general manner, if the response indicates "not paying attention to the lecture(r)", code as ACT)
e.g.: can't concentrate on their work

11. COMM - communication skills - the student is **not** able to communicate, is not able to get ideas across, is not able to express her/himself clearly through speaking or writing (if the responses indicates that the student cannot do the task well, code QUAL-)
    e.g.: cannot express themselves in writing

12. DMIN • does minimum, does not do anything extra
    e.g.: does one copy of a paper
    takes minimal notes

13. HP- • the student does not seek help if needed
    e.g.: doesn't ask for help if having trouble

14. PL • have problems learning the course material (if lack of ability is implied or learning disability is mentioned, code as AB)
    e.g.: they may have some problems with the course

15. REG- • the student does not perform ACA tasks or ACT tasks on a regular or continual basis (or not often, not frequently or not always) or does not perform regularly (generally)
    e.g:: does not always do homework

MOTIVATION CODES (M)

16. MOT • motivation, motivated
    (a) general motivation mentioned
    (b) cares about studies, is interested, conscientious, dedicated, has the desire to learn, is curious
    (c) effort - puts in the effort, willing to work hard, determined, applies themselves to their studies
    (d) expectations - the student has set of expectations which motivates him, there is external pressure to perform to a certain standard
    (e) has goals, is ambitious, competitive, achievement oriented
    (f) likes and/or enjoys what they are doing, likes/enjoys learning, eager and enthusiastic about learning
    (g) persistent - persists in their work, is tenacious, consistent and studious
    e.g.: works hard

See Question #1 for examples of each of these MOT codes.

17. MOT- • not motivated, no motivation
    (a) generally not motivated
    (b) does not care; not interested, conscientious, dedicated or curious
    e.g.: easily bored
    (c) does not put in the effort or the work, not determined, does not apply themselves to their studies
    (d) has no expectations or no expectations placed on them
    (e) has no goals, dislikes competition, is not achievement oriented
    (f) does not like what they are doing, does not enjoy school or learning
    (g) is not persistent or studious

18. PRTY- • education is **not** a priority, other activities are chosen at the expense of completing course work, outside interferences are allowed and engaged in, education is not for advancement purposes
e.g.: likes to go out a lot
party animals

PERSONAL CODES (P)

19. APP • appearance - a descriptive word or phrase about the outer appearance of the student
e.g.: chubby

20. PS (P) - personality stable - this code refers to one of Eysenck's dimensions from his theory of personality (there are three dimensions: Introversion-Extroversion, Neuroticism, and Psychoticism; see Pervin, 1980, p. 240). This dimension is called the "Neuroticism" dimension and refers to stability and instability. The two personality types classified under this stability factor are the phlegmatic and the sanguine personality types.
(a) the phlegmatic personality is characterized by the following traits: passive, careful, thoughtful, peaceful, controlled, reliable, even-tempered and calm. (the MA code appears to fit under this)
e.g.: inaccessive emotions over marks
(b) the sanguine personality is characterized by the following traits: sociable, outgoing, talkative, responsive, easygoing, lively, carefree, and leadership.
e.g.: relaxed in life
(P.S. Don't forget that there are a number of synonyms associated with each of the personality types!) This seemed the only viable way to categorize a large number of descriptions of students' personalities parsimoniously.
You do not need to categorize into the two different personality types, just the PS code.

21. PUN (P) - personality unstable - This is the other half of Eysenck's "Neuroticism" dimension. The two types of personality considered as unstable are the melancholic and the choleric types.
(a) the melancholic type is characterized by the following traits:
moody, anxious, rigid, sober, pessimistic, reserved, unsociable, quiet
e.g.: serious about things
(b) the choleric type is characterized by the following traits:
touchy, restless, aggressive, exciteable, changeable, impulsive, active
e.g.:
(Again don't forget those wonderful synonyms!)
This code could also be called the NERD code as often the characteristics included along with the student's appearance would imply what may students refer to as a "nerd."
You do not need to decide on the personality type, just the PUN code.

22. SC+ • over confident (bordering on arrogance)
e.g.: sometimes overconfident

23. SC- • lacks self confidence, poor self concept, is afraid

e.g.: afraid to try new things

QUALITY CODES (Q)

24. ATT- • has a poor attitude or negative attitude towards school/education
    e.g.: has bad attitude about school

25. BAL- • the student does not maintain a balance in life activities (school work and social activities are not balanced)
    e.g.: does not have a balance

26. QUAL- • quality of work is absent (usually, but not always, mentioned in conjunction with ACA, ACT and COMM codes). Words indicating that quality is absent are: poor, careless, not well ..., inadequate, inefficient, etc.
    e.g.: doesn't take adequate notes
    does not do their best

Other Codes

27. NC - no code

28. NR - no response

Question 3

List as many things as you can that you think would explain the differences in the two students grades.

Sorting Codes- First Level

Experiential Background (E) - History, Background (could be expressed in the present tense) of the student (the family, home life, environment, degree of support, an ability that appears to stem from the family, expectations for student performance from significant others)

Knowledge Background (K) - Previously acquired knowledge (at a postsecondary level there must be some previous learning that influences a student's ability to deal with the material at the present level of education) is affected by the degree of acquisition and the quality of education.

Match (M) - A match between the students' backgrounds/histories and the educational institution itself (a degree of compatibility between the student's background and the educational institution, educational endeavors are usually reinforced and supported at home)

Personal Attributes (P) - Personal or personality characteristics or qualities of the students that will influence their grades (this is implied by an internal locus of control that obviously comes from within the student)

Analytic Codes - Second Level

Most of these codes are given as 'level of' as they appear to be on a continuum.

HISTORICAL BACKGROUND (H)

1. AB • inherent or inherited level of ability (may be IQ) or aptitude for learning
   e.g.: for a student with high grades it maybe a natural talent

2. BKGD • background - refers to family, home life, study or home environment, childhood or other experiences (implied that this is something from the home or takes place in the home, away from the classroom)
   e.g.: different home environments

3. EASE • learning comes easily, it is easy to learn, student learns quickly
   e.g.: this person doesn't have to work really hard for the grades

4. EXP • level of expectations/pressure/influences (from significant others may be directly stated or implied) - can be expectations of friends, family spouse, etc.
   e.g.: being forced to be in "college"

5. LP • problems with learning - it is implied that the student has a history of learning difficulties or has a learning disability (which implies that it has always existed)
   e.g.: has a learning disability

6. SFP • self fulfilling prophecy - if the student believes he/she will perform in a certain way, they usually do
   e.g.: the student who gets the low grades tends to expect this will always happen

7. SUP • level or degree of support of a personal and/or financial nature (learning support or help is coded HP), encouragement
   e.g.: money, rent, student loans

KNOWLEDGE BACKGROUND (K)

8. ACA • level of academic skills - may be expressed as 'knowing' or 'not knowing' how to: study, take notes, manage time, take exams, concentrate on the work at hand, organize, apply knowledge, process information, use memory skills, prepare for class, review, and use resources (the implication is that these behaviors occur outside of the classroom)
   e.g.: they don't know how to study

9. CON • level of conceptual thinking, understanding, comprehension of material or issues at hand
   e.g.: they grasp new concepts and use them in their work

10. QUAL • quality of education (past or present) - sometimes expressed as proper instruction or comprehensive instruction or previous instruction, or as the instructor him/herself
   e.g.: have not been taught in all areas of learning

MATCH (M)

11. ACT • interactive interrelationships - a willingness or lack of willingness to interact with others in a specific situation - a willingness or lack of willingness to interact <u>within the class</u>, with the instructor and/or the other students by talking and/or relating to them, asking questions, paying attention to the lecture, responding to feedback, taking notes, participating in class discussions, attending the classes and sitting towards the front of the class
   e.g.: degree of risk - sharing with the class, expressing opinions and participation

12. CPAT • degree of compatibility with those things related to the world of academia (instructors, educational systems, courses, subjects)
   e.g.: one doesn't cooperate with authority figures as well as the other

13. HP • help - a willingness (or lack of) to obtain help of assistance if needed either from other students, tutors or the instructor
   e.g.: gets help if they don't understand something
   does not ask for help from peers or instructor

14. PRTY • priority - education is important (at the expense of socializing) or there is no priority placed on education and the student spends time doing other things
    e.g.: one might care about getting a good job and continuing their education while the other might not

PERSONAL ATTRIBUTES (P)

15. ATT • attitude - a strength of interest in carrying out a particular course of action, a readiness to act in a certain direction given a certain situation (this can be positive or negative)
    e.g.: Do they possess a positive/negative attitude towards school?

16. HLTH • health factors - related to diet, rest, illness (both mental and physical), injury
    e.g.: take good care of themselves

17. MA • level of maturity - related to responsibility, self discipline, dependability (may be expressed as as an age related factor),
    e.g.: these students are older

18. MOT • motivation level - the desire or interest to work hard and/or do well, to put in the effort, has goals (or lacks them), enjoy learning
    e.g.: for a student with low grades it is usually a lack of effort and willing to try
    school aspirations
    the student with high marks knows what she wants out of life and is serious in doing so achieving it

19. PER • personality attributes - characteristics or traits related directly to the individual including degree of comfort with self, management of anxiety or stress, anything on a personal level, personal/internal resources to deal with various types of situations, coping strategies
    e.g.: their actions and reactions to different situations

20. SC • level of self-concept - the degree to which one believes in, trusts and likes one self; reflected in self-confidence, self-esteem, self-image, self-worth
    e.g.: self-confidence plays a major factor in the ability to learn.

Other Codes

21. NC

22. NR

Question 4

What kinds of things could the student with the low grades do to raise the marks?

Sorting Codes - First Level

The overall theme is CHANGE. Two types of changes are indicated:

Personal (P) - Change or clarify personal aspects of behaving and thinking.

Task Changes (T) - Change the way in which a task is performed or change on-task behaviors which are directly related to improving skills required for better course performance.

Analytic Codes - Second Level

PERSONAL ASPECTS (P)

1. GOAL • re-evaluate, evaluate, prioritize goals
   e.g.: relate schoolwork to goals in life

2. IMP • improve/raise self esteem, confidence, motivation, cultivate positive or better attitude, improve stress levels
   e.g.: want to get better grades

3. SOC • socialize - improve the social situation, keep a balance in life by socializing, socialize with a new group
   e.g.: make friends with students who get high grades

TASK CODES (T)

4. ACA • improve upon academic skills (reading, writing, studying, time management/ budgeting time, organization, organize time, work schedules, note taking, exam taking) - learn new, more, different, better, change, or check. Implied that this is taking place outside the classroom. (see ACA in Q1, Q2, and Q3)
   e.g.: she could use better study skills to improve
   do some research on learning strategies and attempt to use them

5. ACT • interactive classroom behaviors - improve <u>in-class behaviors</u>, attend class, pay attention, listen, participate, listen, ask questions (this is the same as ACT in Q1, Q2, and Q3)
   e.g.: also ask more questions during class

6. COMP • complete course work, assignments, work, readings
   e.g.: do his/her homework as soon as she gets home

7. DOM • the implication is to do more - put in (more) work, effort, time, apply themselves, concentrate, study, review (daily)
   e.g.: study a little more for midterms rather than leaving it go and therefore having to pass the final exam

8. HP • get help (from a person implied), support, assistance from profs, tutors, other students, friends, family, study groups, counsellors, learning assistance centres, seek advice or assistance
   e.g.: seek guidance from family member or school teacher

9. LP • analyze learning problems, get an assessment (formal or informal) of learning problems and learning abilities (strengths and weaknesses), deal with learning problems
   e.g.: find out if they have any types of a learning disability

10. RED • reduce (or stop) outside interferences, activities, job hours, difficulties, personal problems, poor habits (this is done by the student not by some source of help)
   e.g.: get more sleep and good nutrition
   reduce stress or other factors (jobs, responsibilities, etc.)

11. REG • regular - perform class or academic behaviors on a regular basis
   e.g.: read over new notes after each day of class and also review notes from beginning of year 2-3 times a week

(There were a few responses that indicated that the student should "cheat" in order to improve the marks. However, there were less than 5 responses in all 226 cases, so no code was established.)

Other Codes
12. NC

13. NR

Question 5

What kinds of things could the instructor do to help the student with the low grades raise the marks?

Sorting Codes - First Level

Competency (C) - Professors/instructors should demonstrate competency.

Personality Characteristics (P) - The professor/instructor should demonstrate certain personal qualities - qualities or characteristics ascribed to the professor that are seen as being helpful to the students.

Student Responsibility (SR) - Any changes that need to be made are under the control of the student. This is a sorting variable as well as an analytic variable.

Analytic Codes - Second Level

COMPETENCY CODES (C)

1. ACA • academic skills - the instructor should endeavor to teach students different types of academic skills (i.e., study skills, note taking, time management, organization, etc.)
   e.g.: teach student to organize notes

2. ADJ • make adjustments in teaching or be willing to change teaching to meet the needs of students
   e.g.: try different teaching method

3. ALT • make available or be open to or aware of alternate techniques for testing students or assisting them with their learning
   e.g.: make arrangements for things like extra time if they felt the student had a learning difficulty and needed it

4. ASN • assignments - give assignments that are meaningful and/or relevant
   e.g.: try and provide assignments that would appeal to them

5. CLR • clear instructions and/or lectures - provide instructions, guidelines, explanations, directions, outlines that clarify the course content or course expectations or provide answers to questions more clearly
   e.g.: explain the problem in another way

6. COOP • encourage cooperative learning (group work, study groups, sharing)
   e.g.: pair up students in class to exchange ideas
   encourage students to work together as a team

7. DEG • do not degrade the student or make it sound like the student is stupid
   e.g.: don't make the student feel like their questions are dumb

8. EV • evaluation - professor/instructor self evaluates teaching, analyzes what is working and what is not working or talks to students about what is working and what is not, listen to what students have say about the course
   e.g.: be receptive to student feedback about the class

9. EX • examples - provide examples/practical applications (assumed to be during the course of the lecture)
   e.g.: try to include examples etc. when explaining theories, ideas, etc.

10. EXW • extra work - provide for extra work, extra assignments, remedial work, extra readings in order to help the student through the course
   e.g.: send home extra work

11. FD • feedback - professor provides feedback to students, usually mentioned as feedback or as giving information to 'a' student about the course and how he/she is doing in it (sometimes a one-to-one meeting is implied), or feedback is given for purposes of improvement
   e.g.: devote attention to pointing out past mistakes and explaining how to correct them

12. HP • help - provide help for the student (sometimes the type of help offered is not clarified or mentioned, just 'help' the student), provide individual instruction, one-on-one instruction/ assistance/help, spend time with the student (one-on-one often implied), assist students with assignments, tutor them
   e.g.: depending on the size and structure of the class, more one on one time

13. INT • interest - spark interest in class, make class interesting, appear interested in course material (responsibility for making things interesting is assigned to the professor/instructor). "Interested in the student" is coded under RAP
   e.g.: talk in a more lively way so the student is alert and interested

14. MON • monitor problems and/or progress of students
   e.g.: supervise without sufercating

15. OFH • office hours - assign office hours (to meet with students) and/or be available outside of class time (spend time with students is coded as TM)
   e.g.: be available to help after class

16. PACE • pace - lecture at a particular speed
   e.g.: maybe go at a slower pace but not so slow that the rest of the class is bored

17. PART • participation - endorse class participation, get students involved in the class
   e.g.: student involvement in the class

18. QP • question period - make time (sometimes more time) for questions, question period, students to ask questions
    e.g.: the instructor allowing time for and ansering of questions

19. QZ • quizzes - make provisions for quizzes in class (sometimes to check student understanding), these are not regular exams
    e.g.: give mini quizes in order to find out what a person knows and doesn't know

20. REF • referral - refer the student to some outside source (i.e., tutor, agency, service) that would assist the student with problems
    e.g.: give him a tutor if he needs it or feels threatened by the instructor

21. RP • repeat - instructor should repeat important points, information, review ideas/concepts mentioned previously
    e.g.: summary the imp. points

22. SUND • assess student understanding of course material by asking questions and talking to students to see if they understand
    e.g.: make sure the students understand the material covered

23. TS • teaching style - the professor or instructor should have a method or procedure for teaching, whether it be an alternate style or a style that incorporates all learning styles
    e.g.: make sure he/she is organized

PERSONALITY CHARACTERISTICS (P)

24. ENC • encourage - encourage students (often the reasons are not mentioned), give positive reinforcement, rewards offered as encouragement, be reassuring
    e.g.: encourage him

25. LIS • listen - listen to the student (their concerns, their problems, etc. but basically just listen)
    e.g.: be there to listen when they may have failed

26. PAT • be patient, have patience
    e.g.: have patience

27. RAP • rapport - instructor should establish rapport with the students by being interested and concerned about them and being approachable
    e.g.: show the student concern and interest

28. TK • just "talk" - talk to students or to a student (the reasons for the talking are not mentioned)
    e.g.: be willing to talk to the student

29. UND • understanding - the instructor should be understanding
    e.g.: the instructor must be viewed as an understanding, friendly, approachable individual (code RAP and UND)

STUDENT RESPONSIBILITY (SR)
34. SR • the responsibility for learning is placed upon the student
    e.g.: its found in yourself by yourself

Other Codes
35. NC

36. NR

Question 6

What sorts of things could contribute to the student who presently has high grades receiving lower grades?

Sorting Codes - First Level

Again, as in number 4, the overall theme is CHANGE (in personal status, a loss of some kind, conflict). The conditions under which the change took place appear to indicate a temporary situation.

However, the changes are a result of four factors (or sorting codes):

Changes in Coping Strategies (CS) - A strain is placed on the student's coping strategies or coping mechanisms through burn out, crises, depression, a disability, unrealistic expectations, finances, health, personal problems, stress, lack of support, and work-overload.

Changes in the Institutional Interrelationships (II) - The student no longer performs academic skills tasks or classroom behaviors that enhance performance. As well, there may be difficulties with the course, the instructor, and unfamiliarity with the course material.

Changes in Priorities (PRTY) - The priorities in the student's life shifts from education to job, succumbing to peer pressures not to work on courses, and a realization that the program the student is in is the wrong program so the focus of the effort changes.

Changes in Thoughts or Behaviors (TB) - The changes in self-directed thoughts or behaviors affects the quality of school or courses: the student becomes apathetic, reduces effort, loses motivation, becomes over-confident or loses self-confidence.

Analytic Codes -Second Level

COPING STRATEGIES (CS)

1. BO • burn out (specifically mentioned) or may be implied
   e.g.: burnt out

2. CR • crisis - death or illness (implied that it may not be the student personally who suffers but rather a significant other)
   e.g.: outside traumas

3. DEP • depression (must be specifically stated that this is depression otherwise "not caring, lack of interest or motivation' should be coded under those topics even though they may, through extrapolation, imply depression)

Depression may be an important factor given the description of the nature of the change. As Seligman (1991, p. 68) states, you must have five of the following nine symptoms in order to be diagnosed as suffering a "major depressive episode":

1. depressed mood
2. loss of interest in usual activities
3. loss of appetite
4. insomnia
5. psychomotor retardation (slow thought or movement)
6. loss of energy
7. feelings of worthlessness and guilt
8. diminished activity to think and poor concentration
9. suicidal thought or action

e.g.: depression

4. DIS • disability (physical, mental, learning)
   e.g.: come across an affect (e.g. learning disability) that enables them from achieving the high marks they had
   brain injury

5. EXP • expectations too high or unrealistic, therefore, is not able to meet them, can be expectations of instructor, friends, family
   e.g.: expectations of current instructors

6. FIN • financial problems
   e.g.: financial worries

7. HLTH • health related problems - medical, fatigue, inappropriate diet, illness, drug or alcohol problems, illness, injury, from a pregnancy
   e.g.: illness, missing school

8. PRO • personal problems - family problems, problems with friends, emotional problems, environment related problems, social problems
   e.g.: family/marital problems causing distractions

9. STR • stress - this is specifically mentioned (the kind of stressors may not be, if they are code under the kind of stressor mentioned)
   e.g.: stress

10. SUP • loss or lack of support
    e.g.: no support or encouragement

11. WKO • work-overload - the workload is too much for the student
    e.g.: a large workload, fall behind in courses (took on more than they could handle)

INSTITUTIONAL INTERRELATIONSHIPS (II)

12. ACA • lack of organization, studying, memory skills, unprepared, leaves things till the last minute (See Q2 for a detailed outline of this category)

e.g.: not taking the time to really think of what the assignment is about in other words, being off topic and consequently getting a low mark as a result (code EFF and ACA)

13. ACT • lack of interactive behaviors in the classroom; lack of attendance, note taking, class participation, does not ask questions, does not pay attention to the lecture (See Q2 for a detailed outline of this category)
e.g.: not paying attention

14. COU • the course is too difficult or too complex which may result in lack of understanding, lack of understanding of course work, unfamiliarity with course, finds the course is not meaningful
e.g.: truely does not understand class work

15. PROF • difficulty with professor or instructor - the teaching style may be unsuitable, the student sees the instructor as being unfair, there may be personality conflicts, the student doesn't agree with the marking practices, there may be a misunderstanding (problems directly related to the instructor are mentioned), difficulty with the educational institution which is a result of the particular instructor
e.g.: personal dislike of professor

PRIORITY (PRTY)

16. JOB • job, work is taking away from study time (this may be implied - that the job is taking away from study time), the response may be 'job' or 'work'
e.g.: work after school

17. PP • peer pressure (not to work on courses, to do other things, or to lower grades)
e.g.: peer pressure

18. PRTY • other priorities or a change in priorities comes into existence - socializing, partying, falls in love (relationship formed), new interests
e.g.: become interested in extra curricular activities

19. WRP • wrong program, course, career goal - the implication is that the students realize that the program of studies is not for them
e.g.: wrong course

SELF-DIRECTED THOUGHTS OR BEHAVIORS (TB)

20. AP • apathy (doesn't care attitude). Code depression under 'Depression' not apathy.
e.g.: not careing

21. MOT • loss or lack of motivation, initiative (code 'depression' under the topic of that name), loss or lack of interest in the subject or the class, lack of effort
e.g.: lack of motivation

22. OCON • over confident (believes in abilities to carry student through so does not work), often this phrase is used directly
    e.g.: she could become too confident

23. SC • loss or lack of confidence or self-esteem
    e.g.: he could lack confidence

Other Codes
24. NC - no code

25. NR - no response

Question 8

What kinds of things does the student with high grades do to get these grades?

Sorting Codes - First Level

The following themes occur:

Ability (A) - There is an inherited, a conceptual ability or a natural talent which is within the individual.

Cultivates "Institutional Interrelationships" (II) - Institution Interrelationships (getting along in the system, willing to go along with the requirements of the system) are cultivated with the instructor, through in-class behaviors, and behaviors designed to meet educational requirements.

Motivation (M) - The student is motivated to achieve, to put in the effort, cares, has a set of goals, and considers education a priority.

Nothing unusual or special (N) - Nothing is unique to this student's approach.

Quality of Life (personal, educational) (Q) - The student places a focus on the quality of life or work. Ultimately, the quality of one's life is affected by one's thoughts about self, the method of working, the things others do for you, the choices one makes - the property or characteristic of "quality" (mental or moral attribute) is inherent in the attitude, mood, goals, work ethic, support or methods in order to achieve the desired outcome.

Analytic Codes - Second Level

ABILITY (A)

1. AB • natural ability, intelligence or aptitude for school work, has thinking ability, knowledgeable
   e.g.: -innate brightness

INSTITUTIONAL INTERRELATIONSHIPS (I I)

2. ACA • employs academic skills - studies; uses learning strategies; budgets time; organizes; able to read, write or communicate; memorizes; attempts to understand material; reviews; completes readings or assignments; is prepared for class; thinks about the work at hand (See Q1 for a detailed outline of ACA codes)
   e.g.: they gather information and begin with a thesis statement
   studies

3. ACT • interactive in class: listens, attends, takes notes, asks questions, involved in class discussions, talks with instructors/students about course, gets to know the instructor (See Q1 for a detailed outline of ACT codes)

e.g.: takes notes

4. CAT • concentration, attention and focus - the student does things so he/she is able to concentrate, pay attention or focus on the work at hand without being distracted (this is usually stated in a general manner; if the response indicates "attention to the lecture," code as ACT)
   e.g.: if a problem arises, get it cleared up

5. DOM • does more than is required, just does not do the minimum
   e.g.: always does a bit extra, for example, the student would include an example in a test or add something extra in an assignment

6. HP • seeks help (if needed) to meet educational requirements - information on academic skills, help from instructor, help from family, friends, tutor, may hand in work ahead of time presumably for feedback
   e.g.: -looks for additional study help

7. REG • regular - the student performs behaviors regularly or may perform an ACA or ACT code regularly, continuously, all the time, always, often, frequently; the focus here is one repeated and continual performance
   e.g.: always present in class

MOTIVATION (M)

8. MOT • motivation, motivated - the student cares about the studies, is interested, conscientious, dedicated, has the desire to learn and work hard, puts in the effort, is determined, applies themselves, has a set of expectations or goals, is achievement oriented, likes school, is persistent (See Q1 for a more detailed description)
   e.g.: has clear meaningful goals for him/herself

9. PRTY • priority - education is a priority and takes precedence over other activities, the student may 'sacrifice' in order to make educational activities a priority, no outside interferences are allowed or tolerated, education is for advancement purposes
   e.g.: focus on education, reading books, etc. all year long not just during the school year eg. library cards for children

NOTHING (N)

10. NO • nothing unusual or out of the ordinary - there is nothing unusual, unknown or out of the ordinary in the way a student with high marks works, it may be the same as what students who have lower grades do as well
    e.g.: there is no secret

QUALITY (Q)

11. ATT • attitude towards school is positive (cognitive thought processes involved)
    e.g.: their approach to studying will be positive

12. BAL • balances activities in life - school work and other activities, maintains health, diet, sleep
    e.g.: keeps a balance, spends time doing physical activity not requiring mental thoughts as well as doing one's studies to give the brain a rest

13. QUAL • quality of work/effort is a factor: good, proper, well, right, correct. See Q1 for a more detailed description (ACT and ACA can be coded only as QUAL if the statement implies quality)
    e.g.: carefully perfects final product
    does the work to the best of her ability
    studies properly

14. SC • self-concept is important and plays a part in approaches to school; school work affects self-concept
    e.g.: has confidence

15. SUP • has a support system which covers both personal and financial support and/or allows the student time to work on course work
    e.g.: help from parents/others

Other Codes
16. NC

17. NR

Here is a quick coding key for some responses that may appear similar:

RESPONSE	CODE
studies	ACA
studies well/properly/good/hard	QUAL
studies continuously/a lot	REG

Question 9

What kinds of things does the student with low grades do or not do to get the low grades?

Sorting Codes - First Level

The following themes occur (they are the same themes in number 8 but much more varied):

Ability (A+/-) - There is an inherited ability, a conceptual ability or a natural talent that is within the individual; or the individual lacks this ability. As well, the student may lack the background knowledge to accomplish educational tasks.

Cultivates "Institutional Interrelationships" (II+/-) - Institution Interrelationships (getting along in the system, willing to go along with the requirements of the system) are cultivated with the instructor, through in-class behaviors, and behaviors designed to meet educational requirements or the student may not get along with the demands of the system.

Motivation (M+/-) - The student is or is not motivated to achieve, to put in the effort, cares, to have a set of goals, and to consider education a priority.

Nothing unusual or special - Nothing is unique to this student's approach (N+). or Everything is different in the manner in which this student performs (N-).

Quality of Life (personal, educational) (Q-) - The student places a focus on the quality of life or work. Ultimately, the quality of one's life is affected by one's thoughts about self, the method of working, the things others do for you, the choices one makes - the property or characteristic of "quality" (mental or moral attribute) is inherent in the attitude, mood, goals, work ethic, support or methods in order to achieve the desired outcome. In this question, the responses usually indicate a negative quality or a lacking of quality although there are a few positive codes.

Self Perceptions (SP-) - Although this should appear under 'Quality' sorting codes, it has been isolated since it seems to have an importance of its own in this question. The thoughts one has about one's self, the fear or confidence one feels in performing academic tasks, the personal problems that interfere with coping skills or self-concept, and the beliefs that students hold about themselves as learners, all play an important role in the way the students function within the system.

Analytic Codes - Second Level

Some of the following codes are given as opposites of each other, a plus sign (+) indicates a positive aspect and a minus sign (-) indicates the negative quality of

the same aspect. In some cases, the codes do not have with a + or a - because the responses are not given in that manner.

ABILITY (A)

1. AB+/- +has the ability (natural,conceptual, abstract); thinks through things; speed of learning, learning is easy
-lacks the ability; does not think things through; slow learner implied, learning does not come easily
e.g.: they don't catch on as quickly as the student with higher grades

2. KNO- -lacks previous knowledge or academic skills in order to complete the course requirements (if the statement implies a lack of ability, code as AB-; it the statement implies that the skill is not performed, code as ACA-); the student does not know 'how to' study well
e.g.: doesn't know how to study

3. LP •has learning problems, may have a learning disability which may be a contributing factor
e.g.: may have a learning disability

INSTITUTIONAL INTERRELATIONSHIPS (I I)

4. ACA+/- +performs academic skill(s): study, budget time, organizes, has comprehension or understanding, etc. (See Q1 for a complete listing of ACA)
e.g.: they also study
-does not perform academic skills (if the response indicates that the student lacks the skills code as KNO-); the emphasis here is only on the "performance" aspect of the skill; or does not perform the skill themselves, takes from others
e.g.: they don't study

5. ACT+/- +is interactive in the class - listens, takes notes, attends, asks questions, participates in class discussions, talks to instructors or other students about the course, pays attention in class (See Q1 for a complete listing of ACT)
e.g.: writes notes in class usually
-not interactive in the class - does not listen, take notes, attend, ask questions, does not participate in class discussions, does not talk to instructors or other students about the course, does pay attention in the class
e.g.: not paying attention in class

6. CAT- -the student is not able to concentrate, attend to, or focus on the task, is distractible
e.g.: spends much study time not studying, looking around, arranging books and paper, etc.

7. DMIN •does the minimum amount of work, does not do anything beyond what is required
e.g.: doesn't give 100% just does enough to get by

8. HP+/- -doesn't ask or seek help when it is needed; will not go see someone outside of the class situation who could help
e.g.: doesn't ask of help from the professor

9. REG- -the student does not perform academic behaviors regularly
e.g.: does not review notes each night

10. TIME+/- +the student spends time or takes the time to do academic work
e.g.: spends a lot of time working
-the student does not spend the time to do academic work
e.g.: doesn't put in the time to get the work done

MOTIVATION (M)

11. MOT+/- +has the motivation/interest to do well or to work; has (clear) goals; cares, is interested, tries to meet expectations, puts in the effort (See Q1 for a complete listing of motivation codes)
e.g.: is motivated
-lacks the motivation/interest to work hard or do well; lack of goals or goals unclear, etc.
e.g.: is not motivated
not especially high goals (in grades)

12. OINT •outside interference, something outside of school (job or other activities) may be interfering, like socializing (if personal problems, then code PRO; if distractible, code CAT-)
e.g.: they would probably watch a lot of tv

13. PRTY- -priority is not on education, does not like (negative affective component) school or courses or learning, does not make a commitment to education
e.g.: school not important

NOTHING (N)

14. NO+/- +does nothing different from the student with high grades (only the marks differ, not the methods of obtaining the marks)
e.g.: this student could still be doing the same things as the student with high grades and still getting low grades
-does everything different from the student with high grades
e.g.: does everything the opposite of student with high grades

QUALITY (Q)

15. BAL- -does not balance educational and personal activities
e.g.: doesn't keep social life and school life in balance

16. QUAL- - the lack of quality of work/effort is a factor (not good, not proper, poor, wrong), or the student does not do the best they can (these can be ACA or ACT codes that imply that quality is present). See Q1 for a complete list of QUAL codes.

e.g.: does not study properly

SELF (S)

17. FEAR •fearful of appearing 'dumb' or 'stupid' and does not complete the work that needs to be done, or is afraid to address issues that need to be addressed.
    e.g.: scared to ask for help
    •fear of failure; afraid to fail so does not try
    e.g.: they have often failed so they do not wish to rely on their own decisions for fear of failure once more

(FEAR appears to be the opposite of self-confidence or SC. However, if fear is mentioned, code as FEAR not SC-)

18. PRO •personal problems - family problems, problems with friends, emotional difficulties, environment related problems, social problems, stressors, worries, blames others, harbors negative feelings
    e.g.: this student worries

19. SC- -self-concept or self-confidence is missing or lacking
    e.g.: they feel the instructor is too authoritarian or superior to the student

20. SFP •self-fulfilling prophecy - the student does not believe or think that s/he will do well, therefore s/he does not do well
    e.g.: says I just know I'll get everything wrong sits down to do the test knows nothing at all draw a blank and fails her test

Other Codes

21. NC

22. NR

Here is a brief list of some codes where the responses appear similar:

RESPONSE	CODE
does not study	ACA-
does not study enough/hard	MOT-
puts off studying till the last minute	ACA-
does not know how to study	KNO-
does not study properly	QUAL-
does poor job of studying	QUAL-
spends a lot of time studying	REG+

Question 11

Thinking back on your experiences of being a student, what recent information has given you a broader perspective on what it means to be a better student?

Sorting Codes - First Level

Attitudinal and Motivational (AM) - Some change in the way of thinking or feeling about things (attitude) has come about so that there is more of an inclination to attempt a task and to work at that task.

Behavioral (B) - The students have sought to act to meet their requirements or to do better work.

Nothing (N) - There has been no recent information that has made any difference to the way in which things are done or to clarify what being a 'better' student means.

Personal Growth Experience (PG) - Through some realization (internal process) or through some external experience that has been internalized, the student has become aware of her/himself as a person or a student.

Support (S) - The need for support from others is acknowledged; one cannot do everything required without some help or support.

Value of Education (VE) - The learning that is done within an educational setting extends beyond the classroom and into the outside world (i.e., education has value).

Q11 - Analytic Codes - Second Level

ATTITUDE/MOTIVATIONAL CODES (AM)

1. ATT • code ATT only if the response has the word "attitude" in it - attitude (general) - a way of thinking about the way in which tasks are approached, or a concern about the way in which tasks are approached, a strength of interest in carrying out a particular course of action, readiness to act in a certain situation
   e.g.: change attitude towards school and study

2. MOT • be motivated, ambitious, dedicated, willing to work hard, put in the effort, care, enjoy the experience, demonstrate concern and interest, having clear goals, do not give up
   e.g.: I realy tryed

3. PRO • program - the program or school that the student has chosen or is in is appropriate (satisfaction with choice of program implied)
   e.g.: LD program

4. QUAL • quality of life/work comes through learning, quality of work at school is important (good, better, best, proper, well, efficient, right, quality), acquire better school skills, habits and behaviors (acquire "more" is coded elsewhere)
   e.g.: do the best I can

5. SC • self-concept - attitudes toward 'self' affected the way in which the student approached and accomplished the work
   e.g.: felt good about myself
   I know I can and am able to do it

6. STAN • standards or requirements of the postsecondary institution are to be met in order to stay in school, or standards for rewards/scholarships are attempted
   e.g.: I need very high marks to get into the faculty I want

BEHAVIORAL CODES (B)

7. ACA • academic skills (reading, writing, studying, time management, organization, note taking, comprehension, understanding) are necessary to have or to do, possibly in greater quantity (more)
   e.g.: study harder

8. ACT • interactive in the classroom situation - being willing to act within the classroom setting (take notes, ask questions) or educational setting; being participatory in class, with school related activities, with educational-social activities, associating with others (students, instructors) in the educational institution, responding to feedback on course work
   e.g.: get to know the instructors well

9. BAL • balance - seek to maintain a balance between life/health and school (don't always do school work)—this is the opposite of SAC (sacrifice)
   e.g.: balance your social life and school work

10. COM • compare/comparison - comparing how other students do things with the way you do things to find out how they differ, get the information on how certain techniques may differ in approach
   e.g.: as well I've watched how my fellow students have studied and how well they've done and compared their strategies to mine ...

11. DOM • do more (usually ACA or ACT)
   e.g.: higher grades means extra reading or extra research

12. REG • regularly reviews, studies, goes over notes, etc.; the emphasis is on continual patterns of work or effort. See Q1 for a complete description of REG codes.
   e.g.: to (use) strategies and techniques ... regularly

13. RULE • set rules for self in order to maintain performance

e.g.: placing limits on myself

14. TIME • it is important take the time to do the work required
e.g.: need to take time to do the work

15. SAC • sacrifice other parts of your life in order to stay in school, reduce outside activities
e.g.: sacrifice most of my social life

NOTHING CODE (N)

16. NO • nothing (not much) has changed, nothing has made a difference, whatever has been attempted has not changed subsequent events
e.g.: there really hasn't been any new recent information

PERSONAL GROWTH EXPERIENCE (PG)

17. ACC • accept - acceptance of self, coming to terms with your own abilities, desires (this is not expressed as a comparison between self and others, it is more a statement of fact, "this is the way I am.")
e.g.: I will never be an A student. I'm happy to be a C student

18. COU • course - recently took a special course or courses, workshops to improve skills or self
e.g.: I took the master student course

19. IND • individual differences between learners are recognized, different people have different abilities (this code implies a comparison)
e.g.: we all learn differently, we're not the same

20. INF • have been influenced by past experience, significant others
e.g.: when I found out my "g.p.a." (HaHa) was 1.5

21. LRN • learning about 'how a person or self learns' has occurred, have learned what works for them as individual students (there is no implication that any kind of a course has been taken here)
e.g.: to do what works for me

22. MA • maturity has helped, accepting/taking responsibility; doing things for yourself, no one else can do it for you
e.g.: settling down
doing things for yourself

23. SAW • self-awareness (general) - has developed own personal strategies and is aware of them, have developed an awareness of what learning means personally (i.e., have become more aware of themselves, some self-revelation or self evident truth has appeared)
e.g.: to cope and deal with task, assignments, feedback and constructive criticism
not to compare self to others
grades are not an important factor

I am here by choice
you reap what you sow
treat school as a job

SUPPORT CODE (S)

24. HP • being able to ask for help when it is deemed necessary, there are times when help is needed
    e.g.: have learned recently that I need more "outside" help

25. SUP • having someone to support you; personally, educationally, financially
    e.g.: family support for your education
    fellowship with other students

VALUE OF EDUCATION CODES (VE)

26. BEY • beyond the classroom - learning or what is learned (knowledge) goes beyond the classroom influencing jobs, goals, life (if a specific skill is mentioned, code as SKILL; if quantity of knowledge is mentioned, code as KNOW), applies what is learned to everyday life or a job
    e.g.: looking forward to being in the field

27. KNO • more knowledge is gained
    e.g.: I have learned a lot

28. SKILL • develops specific skills that apply beyond the classroom
    e.g.: I know that I have to have good typing skills and accuracy in order to be a good secretary

29. THINK • education can teach students how to think about issues, reason things through
    e.g.: to be able to take in, accomodate, assimillate, process information alot easier

Other Codes

30. NC

31. NR

Question 14

When you felt successful in learning, what techniques did you use that contributed to this success?

Sorting Codes - Level One

Highly Motivated (HM) - The student was "highly motivated" to do the work for the course/program (spent extra hours, more time, worked hard/harder - this is more a comparative code than any of the other codes as they indicated that they were doing more than the normal).

Quality (Q) - Quality of performance was important and is reflected in the care that was given, the meaningfulness of the tasks, a general concept of quality, a seeking to understand, feeling good about 'self,' and resulting knowledge acquisition.

Scholastic skills were performed (SS) - Although the students employed academic skills and promoted interactive relationships, there appeared to be an emphasis on: very specific academic skills techniques, repetition of material to be learned, regularity of work, being focused and prepared.

Analytic Codes - Second Level

HIGHLY MOTIVATED (HM)

1. CAT • were able concentrate, attend to, or focus on the task
   e.g.: concentrating

2. DOM • did more - the students did more ACT codes or ACA codes (than they had done before implied)
   e.g.: asked more questions to be sure I understood the material

3. MOT • motivation - had the motivation or put in the effort to do more, put in more work or extra work (worked hard/harder), studied hard/harder/more, cared about the work, was more interested
   e.g.: more effort in studying

4. TIME • put in more time or extra time to get the work done; the emphasis here is on 'time'
   e.g.: spend more time on the material
   spends time studying

QUALITY (Q)

5. KNO • accumulated knowledge, knew the information/material, felt comfortable with what they learned, overlearned, became more knowledgeable
   e.g.: didn't go until I was sure of the material

6. MEAN • meaningful - the students found the tasks purposeful, meaningful, goal directed, applicable
   e.g.: apply the knowledge

7. QUAL • quality of work indicated: good, proper, thorough, well. These may be ACA and ACT codes as well as a reference to general or overall quality.
   e.g.: good notes

8. SC • self concept, self confidence - students were confident about their ability to do the tasks required, were not fearful, had a positive view of themselves, felt like they had accomplished something, learned something about themselves
   e.g.: learning I'm not stupid and I can do it

9. THINK • think - the students could reflect back on the work they had done and evaluate it
   e.g.: reflecting back on what is learned is important so you realize the importance of the subject not only to the exam coming up in two weeks but also to your life as well as other classes

10. UND • the students sought to understand/comprehend the material or information before them. The process of understanding is important to the respondents and they appear to have worked to obtain this understanding.
   e.g.: trying to understand it (the material)

SCHOLASTIC SKILLS (SS)

11. ACA • academic skills - in this question ACA is coded only if the response is a generic or general response indicating that the student studied, researched, managed time, was organized, comprehended/understood the material (if they mentioned a very specific academic skill technique, code as TECH; if they indicated that they did more of the above, code DOM; if they indicated that they worked hard to understand the material, code as UND, since it is implied that "understanding" was important to the process)
   e.g.: I studied all the material in a systematic way

12. ACT • interactive in the classroom - in the classroom situation, they displayed a willingness to cultivate "institutional interrelationships" (i.e.: taking notes, speaking to the instructor, sitting at the front of the class, participating in class discussions, asking questions. If they did more of any these behaviors, code as DOM)
   e.g.: ask questions if not sure of the material

13. REG • worked continuously, on a regular schedule
   e.g.: reviewed the work nightly

14. REP • repeats, rereads (this can be an ACA or ACT code, but the focus here is on repetition)
   e.g.: rereading the material

15. TECH • technique - a very specific academic skill is mentioned (you will not have seen this kind of specificity in responses to previous questions)
    e.g.: used index cards

Other Codes
16. NC

17. NR

Here is a brief list of codes where the responses may appear similar:

RESPONSE	CODE
study	ACA
study hard/lots	MOT
spend lots of time studying	TIME
uses the library	ACA
studies properly/thoroughly	QUAL
spends time	TIME
extra reading	DOM
good notes	QUAL
study, study, study	MOT

Question 15

When you felt unsuccessful in learning, what techniques did you use that you think lead to being unsuccessful?

Sorting Codes - Level One

Motivation (M) - Students were not motivated enough to do well, did not display appropriate motivation levels or have appropriate motivators in place (refers to a "quantity" rather than a "quality").

Personal Issues (P) - Personal issues interfered, quality of personal life was affected by outside events.

Quality (Q) - The quality of the students' work was affected by attitudes and behaviors. Self-concept was affected which influenced the quality of the student's thoughts about themselves.
*Look at AB, SC and COMP as they reflect the quality of students' thoughts about themselves.

Scholastic Skills (SS) - Scholastic skills were not up to par, they did not exist in sufficient quantity to do well. Quantity of time was not controlled well enough to be successful.
*Pull out ACA(TM) as it is a large grouping.

Support (SUP) - Lack of appropriate support or support systems - Students felt the support they received was not conducive to success.

Analytic Codes - Second Level

All of the following codes are in the **negative**, so it is not necessary to mark each code with a minus sign (-).

MOTIVATION (M)

1. CAT • lack of concentration, attention and focus, unable to concentrate or focus
   e.g.: pre-occupation with something ... so nothing I attempted accomplished much

2. MOT • lack of motivation; lack of caring, interest, liking; inappropriate goals, goals unclear, goals incorrectly focused; lack of effort; low expectations for performance; lack of persistence, became lazy
   e.g.: caring that I pass and not that I do good

3. PRTY • did not place education as a priority - did other things (other than school work), allowed other things to interfere (this is usually a vague kind of response as it is not clear as to what these "other things" actually refer to)

e.g.: goofing off

NEVER HAD THE PROBLEM (N)

4. NEV • the student has not experienced failure or lack of success in learning
   e.g.: I have never had this problem

PERSONAL ISSUES (P)

5. ANX • anxious, felt nervous, worried, rushed
   e.g.: having to rush if I'm pressed for time

6. EMO • emotions took over or became emotional, angry, frustrated
   e.g.: allowing anger to get in the way of learning

7. HLTH • health factors interfered, did not take care of oneself, may have been ill, neglected to take proper care of self
   e.g.: did not exercise regularly

8. PRO • problems - family, relationship, friend problems or interferences, personal problems
   e.g.: problems with a friend

9. TOO • did too much, tried too hard (implication is "burn out" resulted)
   e.g.: I studied myself to death to much

QUALITY (Q)

10. AB • lack of ability, saw her/himself as lacking in ability (intelligence or ability to perform a task) reflecting a negative quality of thoughts about self
    e.g.: lack of ability

11. ATT • negative attitude toward school or school related things
    e.g.: regarded courses with a negative attitude

12. BKGD • background insufficient, students not prepared for the course or the material
    e.g.: lack of knowledge of the subject

13. CARE • careless, doing work quickly (implication is that this results in a poorer quality end product)
    e.g.: rushed through assignments and hastily done science labs ... and caused them to look messy

14. COMP • compared self with others (the implication is that the students found this to be counterproductive and not reflective of confidence in self)
    e.g.: tried to do everything as fast as others so I wouldn't be different

15. QUAL • quality - refers to quality of work and is mentioned in conjunction with ACA and ACT codes: lack of quality may use words such as poor, inefficient, not proper, bad, etc.

e.g.: bad study skills

16. SC • negative self-concept - negative thoughts, feelings about self and life in general, feelings of incompetency, unaware of strengths and weakness, unaware of own limitations
    e.g.: feeling inferior

17. UND • lack of understanding, comprehension of the course material or what is required for the course
    e.g.: didn't really understand the topic I was studying

SCHOLASTIC SKILLS (SS)

18. ACA • did not employ or have academic skills techniques (not enough, or just did not do any), did not study, lacked organization, did not read or research, did not use time management skills (time management must be stated specifically, if the student says "I did not spend enough time" code as TIME). Include "did the minimum ..." under this as it does not have a sufficient number of responses to rate a separate code.
    e.g.: did not study

19. ACT • used incomplete classroom strategies or did not engage in interactive relationships within the classroom situation (did not take notes or did not take proper notes, did not attend class, did not ask questions, did not pay attention in the class)
    e.g.: not paying attention

20. TIME • not enough time spent or allotted (implication is that only a portion of the total time available was spent on the course/work)
e.g.: didn't spend enough time on it

SUPPORT (SUP)

21. ENC • lack of encouragement
    e.g.: other people assuming this was not for me

22. HP • lack of help/assistance (usually because they didn't ask)
    e.g.: not asking for help

23. INST • instructor contributed to failure in some way, was not supportive
    e.g.: teachers attitude on what I was able to learn

Other Codes

24. NC

25. NR

APPENDIX G: ASSESSMENT BATTERIES FROM THE VARIOUS PSIs INVOLVED IN THE STUDY

ASSESSMENT BATTERIES*

I. ASSESSMENT BATTERY - UNIVERSITY OF ALBERTA
   A. Indepth Interview
   B. WAIS-R: Wechsler Adult Intelligence Scale-Revised
   C. WJPB: Woodcock-Johnson Psycho-Educational Battery: Tests of Cognitive Ability
   D. WJPB: Woodcock-Johnson Psycho-Educational Battery: Tests of Achievement
   E. Auditory Analysis Test
   F. CELF: Clinical Evaluation of Language Functions: Diagnostic Battery
   G. PPVT-R: Peabody Picture Vocabulary Test-Revised
   H. Detroit-R: Detroit Tests of Learning Aptitude, 2nd ed.
   I. Benton Visual Retention Test
   J. Hooper-VOT: Hooper Visual Organization Test
   K. Bender Visual-Motor Gestalt Test
   L. SDRT: Stanford Diagnostic Reading Test
   M. SDMT: Stanford Diagnostic Mathematics Test

II. ASSESSMENT BATTERY - GRANT MCEWAN COMMUNITY COLLEGE
   A. Interview and Interview Form
   B. WAIS-R: Wechsler Adult Intelligence Scale-Revised
   C. WJPB: Woodcock-Johnson Psycho-Educational Battery: Tests of Cognitive Ability
   D. WJPB: Woodcock-Johnson Psycho-Educational Battery: Tests of Achievement
   E. CELF: Clinical Evaluation of Language Functions
   F. Auditory Analysis Test
   G. Detroit-R: Detroit Tests of Learning Aptitude, 2nd ed.
   H. Benton Visual Retention Test
   I. Bender Visual-Motor Gestalt Test
   J. Hooper-VOT: Hooper Visual Organization Test

III. ASSESSMENT BATTERY - SOUTHERN ALBERTA INSTITUTE OF TECHNOLOGY (SAIT)
   A. Interview
   B. WAIS-R: Wechsler Adult Intelligence Scale-Revised
   C. WJPB: Woodcock-Johnson Psycho-Educational Battery: Tests of Cognitive Ability
   D. WJPB: Woodcock-Johnson Psycho-Educational Battery: Tests of Achievement
   E. Auditory Analysis Test
   F. CELF: Clinical Evaluation of Language Functions: Diagnostic Battery

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* The majority of the students who were diagnosed as having learning disabilities in this study were assessed by qualified personnel within the postsecondary institutions they were attending. However, some of the students had been diagnosed by persons outside the PSIs. These were qualified personnel such as psychologists in private practice, educational assessment personnel, or medical practitioners.

G. PPVT-R: Peabody Picture Vocabulary Test-Revised
H. Detroit-R: Detroit Tests of Learning Aptitude, 2nd ed.
I. Benton Visual Retention Test
J. Hooper-VOT: Hooper Visual Organization Test
K. Bender Visual-Motor Gestalt Test
L. LPAT: Learning Potential Assessment Test
M. OT Assessment (in special cases)
N. Speech and Language Assessment (in special cases)

IV. ASSESSMENT BATTERY - MOUNT SAINT VINCENT UNIVERSITY
A. Interview
B. WAIS-R: Wechsler Adult Intelligence Scale-Revised
C. WRAT-R: Wide Range Achievement Test-Revised
D. PPVT-R: Peabody Picture Vocabulary Test-Revised
E. HTP: House-Tree-Person
F. Bender Visual-Motor Gestalt Test
G. Rotter Incomplete Sentences Blank (College Edition)
H. KFD: Kinetic Family Drawing
I. Supplemental Testing: Wechsler Memory Scales, neurological testing, Visual Auditory Digit Span (VADS)